

The Alps in nature and history

William Augustus Brevoort Coolidge

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THE ALPS
IN NATURE AND HISTORY



THE SASS MAOR (DOLOMITES) FROM THE PALA DI SAN MARTINO

THE ALPS.

IN NATURE AND HISTORY

BY

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PREFACE

THE following pages are not intended to be either an exhaustive description of the Alps or a series of impressions of travel amongst them. But they do claim to offer to the reader an account of the most interesting features presented by the Alps from several points of view, and an account that is based on the personal experiences of over forty years' wandering through almost every district of the great chain.

No attempt has been made to explain how the Alps came into being, or how in the course of long ages their outlines and valleys may have changed. They are taken as they exist in the early twentieth century, and treated as practically unchangeable. In the early chapters they are looked at from the physical side,—their extent, their pastures, their glaciers, their flowers, and their beasts and birds being successively described. Then we come to Man in the Alps, first man in himself as a human being actually inhabiting various districts of the chain, speaking divers languages, and professing several forms of belief, and next man as the subject of political vicissitudes of history, which naturally have affected his home as well as himself. In particular, an attempt has been made to trace out the political or territorial history of the chief summits of the Alps. In later chapters Man is con-

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sidered in his relation to the principal passes across the Alps, and as the explorer of the innermost recesses of the High or snowy Alps, this naturally entailing some notice of the Guides of the Alps, through whose efforts and loyalty the High Alps were gradually conquered. A short chapter sketches the impressions made at different seasons of the year on one who dwells among them, or who often visits them.

In the final chapter of the work the Alps, hitherto looked at as a whole, are considered in detail as forming twenty groups, with divers characteristic features. In the Appendix, Lists are given of the heights of the principal peaks and passes of the Alps, arranged in the twenty groups enumerated above, of the dates of the successive conquests of the more important summits, and of some of the books relating to the chain as a whole that can be recommended to readers desiring to examine the subject more closely.

I desire to lay special stress upon the fact that comparatively little has been said in these pages as to matters of Natural Science connected with the Alps. Such subjects are best studied in more special treatises, while the present work aims only at giving a general account of the Alps without trying to explain or to investigate the natural phenomena which are to be found therein. Thanks to two well-qualified friends, to whom I here offer my heartiest acknowledgments for their help, the Flowers of the Alps, as well as their Beasts and Birds, are treated of in a manner which should prove attractive to many readers. But here again things are described as they are at present, and not the evolution of things, however interesting such a subject may be.

I have also to thank Mr. D. C. Lathbury most sincerely

for the courtesy which has allowed me to make use of various articles contributed by me in 1901-1903 to the *Pilot*. A portion of their contents is included in Chapter XI., as well as in groups 1-8 and 11 of the special description of the Alps given in the final chapter of the work.

The Map that accompanies this work has been carefully prepared by Mr. Bartholomew, and is designed to afford a bird's-eye view of the Alpine chain, with its principal peaks, passes, and glaciers, the main idea being to mark the way in which the mountains rise gradually out of the plains till they culminate in lofty snow-clad summits.

The Illustrations are, for the most part, reproductions after admirable photographs of Signor Vittorio Sella, to whom I beg to express my hearty thanks for permitting me to adorn my book with some of his marvellous views of the High Alps. A few other Illustrations are due to the kindness of several friends, Mr. Alfred Holmes, Monsieur Victor de Cessole, and Signor Guido Rey, who have placed them at my disposition, and whom I beg to assure of my great appreciation of their readiness to oblige, for it is not easy to procure certain of these views.

In general I am immensely indebted to my friend, Dr. R. L. Poole (Member of the British Academy, and Fellow of Magdalen College, Oxford) for much help and advice, particularly as regards the historical Chapters (VII. and VIII.). He suggested to me the idea of framing diagrams by which to make clear the relations of the Great Historical Passes of the Alps. Thanks to the skill of Mr. Darbishire, this excellent suggestion has been carried out in a manner that will be most acceptable to my readers.

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I have also to acknowledge, most gratefully, help of various kinds, whether in the shape of reading proofs or of giving valuable hints, rendered by four other friends: Sir Martin Conway, Mr. Douglas W. Freshfield, Mr. W. M. Baker, and Herr H. Dübi.

W. A. B. C.

GRINDELWALD, *April* 1908.

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THE SASS MAOR (DOLOMITES) FROM THE PALA DI SAN MARTINO, *Frontispiece*

(This peak rises S. of the Pala di San Martino, and therefore E. of the valley of Primiero, over which it towers grandly. The summit seen to the left is the higher, 9239 ft., while the lower, the Cima della Madonna, 9026 ft., rises to the right hand of the spectator. Together they form one of the most daring and imposing of the Dolomites. The ascent of both points is very difficult, the *easiest* way being up the N. face, that seen in our view, to the gap between the two summits. The point in the foreground is the Cima di Ball, 9131 ft., which takes its name from the famous English mountain explorer).

THE SCHRECKHORN RANGE (BERNESE OBERLAND) FROM THE FINSTERAARHORN, *Opposite page 1*

(It is nearly impossible to get a good view of the S.W. side of this range, except from the top of the Finsteraarhorn, which rises to the S. The long ridge of the Strahlegghörner, 11,444 ft.—the pass of the Strahlegg is just not seen—leads up to the foot of our range, and divides the Strahlegg Glacier, seen on the right of the spectator, from the upper basin, not seen, of the Lower Grindelwald Glacier. In the main range itself we have, going from left to right, a bit of the Gwächten, 10,397 ft.; the Gwächtenjoch, 10,365 ft.; the Klein Schreckhorn, 11,474 ft.; the Nässijoch, 11,221 ft.; the Nässihorn ridge, 12,300 ft.; the Gross Schreckhorn, 13,386 ft.; the Schrecksattel, 13,052 ft.; the Gross Lauteraarhorn, 13,265 ft.; the Klein Lauteraarhorn, 12,277 ft., and the other points on the ridge dividing the Strahlegg Glacier from the Lauteraar Glacier. Behind our range is seen that separating the Lauteraar Glacier from the Gauli Glacier, and still more in the background the ridge that limits on N. the Gauli Glacier itself).

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THE MÄRJELEENSEE (GROSS ALETSCHE GLACIER),

Opposite page 15

(This, the most famous of all glacier lakes, lies at a height of 7766 ft., and at the N. foot of the well-known view-point of the Eggishorn, in the Vallais. It occupies part of the nearly level depression separating the Fiescher Glacier from the Gross Aletsch Glacier, which holds in the lake on the W. Icebergs generally float upon its surface. Despite a drainage channel to protect the pastures to the E. of the lake its waters occasionally escape towards the W. by sub-glacial channels and then flood the environs of Brieg. To the left of the spectator a bit of the Mittel Aletsch Glacier is seen, then comes the black peak of the Olmenhorn, 10,886 ft., beyond which is the long ridge of the Dreieckhorn, 12,540 ft.).

A CREVASSE ON THE DZASSET GLACIER (EASTERN GRAIANS),

Opposite page 23

(A typical crevasse on a little known Italian glacier).

THE MONT HERBETET (EASTERN GRAIANS) FROM THE DZASSET GLACIER,

Opposite page 33

(This fine rocky peak, 12,396 ft., though far from being the loftiest summit in its district, is by many considered to be the most striking peak of the region. It is here seen from the S.E., the very jagged ridge, on the left of the spectator, being the famous S. arête, which affords a delightful series of exciting difficulties to rock climbers).

THE WETTERHORN, EIGER, MÖNCH, JUNGFRAU, ETC. (BERNESE OBERLAND) FROM THE BLÜMLISALPHORN,

Opposite page 46

(In the foreground we see the delicate snow crest that forms the summit of the Blümlisalphorn, 12,044 ft. Behind it are the various peaks named, going from left to right. Beyond the great opening of the Lauithorn, 12,140 ft., to the right of the Jungfrau, the Fiescherhörner, 13,285 ft., and the Finsteraarhorn, 14,026 ft., are seen in the background. To the right of the Lauithorn, in the middle distance, stretches the long snowy ridge, crowned by the Gletscherhorn, 13,065 ft., the Ebnefluh, 13,006 ft., and the Mittaghorn, 12,779 ft., which closes the head of the Lauterbrunnen valley, and forms such a conspicuous feature in the well-known view from the frequented village of Mürren).

MONTE ROSA FROM THE FALLERHORN, . *Opposite page 65*

(The Fallerhorn, 10,270 ft., is a fine view-point in the ridge separating the Val Sesia, S.E., from the Val Anzasca, E., and running S.E. from the main mass of Monte Rosa. The upper portion of this ridge is shown, on our view, from the Monte delle Loccie, 11,477 ft. (just seen on the extreme right of the spectator), past the depression of the Col delle Loccie, 11,001 ft., over the rocky hump of the Punta dei Tre Amici, 11,618 ft., to the Signaljoch, 12,441 ft., whence it rises sharply to the summit, the Signalkuppe or Punta Gnifetti, 14,965 ft., which occupies the centre of the picture. The greater part of our view (to the left of the spectator) shows the glaciers and peaks at the head of the Val Sesia. Going from left to right we see the rocky Punta Giordani, 13,304 ft., and the snowy Vincent Pyramide, 13,829 ft., beyond which is the depression of the Colle Vincent, 13,652 ft. Thence we mount over the minor summits of the Schwarzhorn, 13,882 ft.—which hides the Balmenhorn, 13,500 ft.—and of the Ludwigshöhe, 14,259 ft., to the snowy dome of the Parrotspitze, 14,643 ft. Just beyond is the great couloir leading up to the Sesiajoch, 14,515 ft., long the loftiest pass ever crossed in the Alps, and then rises the Signalkuppe, which hides the Colle Gnifetti, 14,699 ft., and the Zumsteinspitze, 15,004 ft. The next snowy gap is the Zumsteinsattel, 14,601 ft., beyond which the rocky point of the Dufourspitze or highest summit of Monte Rosa, 15,217 ft., peers over the watershed and frontier—for it rises on a spur to the W. of both. The wide opening of the Silbersattel, 14,732 ft.—at present the loftiest pass yet crossed in the Alps—leads the eye on to the Nord End, 15,132 ft. The smaller portion of our view, from the Zumsteinsattel to the Nord End, shows the E. face of Monte Rosa, that forms such a magnificent spectacle from Macugnaga at the head of the Val Anzasca).

THE POINTE DES ECRINS AND THE PIC COOLIDGE
(DAUPHINÉ ALPS) FROM THE CHARDON GLACIER,*Opposite page 75*

From a Photograph by ALFRED HOLMES.

(The former of these peaks, 13,462 ft., is the loftiest point of the Dauphiné Alps, while the latter, 12,323 ft., rises to its S., and is one of the finest view-points in the region. The S.W. slope of both is here shown. To the left hand of the spectator is the Ecrins, followed by the narrow notch of the Col des Avalanches, 11,520 ft., whence it is often ascended. Next to the right comes the rock tower of the Fifre, 12,074 ft., which, like the Pic

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Coolidge, just beyond, was first climbed by Mr. Coolidge, the lower point in 1881, the higher in 1877. The Pic Coolidge formerly bore several names, but received its present appellation in 1879 from some French mountaineers who desired to commemorate the long-continued explorations of the author of these pages in the district).

LES BANS (DAUPHINÉ ALPS) FROM THE PILATTE GLACIER,

Opposite page 87

From a Photograph by ALFRED HOLMES.

(This summit, 11,979 ft., is the loftiest that rises in the ranges which form the S. limit of the main or Pelvoux group of the Dauphiné Alps. It is finely situated at the meeting-point of three Alpine glens, those of Pilatte, of Entraigues, and of the Valgaudemar. It was first climbed in 1878 by Mr. Coolidge from the snowy gap, the Col des Bans, 11,090 ft., that is seen to the left of the peak. Some way farther to the left, but invisible on this view, is the more famous Col de la Pilatte, 11,057 ft., which was first crossed in 1864 by Messrs A. W. Moore, H. Walker, and E. Whymper. The great Pilatte Glacier which fills the foreground is one of the finest in the Dauphiné Alps, and is the main source of the Vénéon, the stream that flows down from the loftiest summits of the region).

MONT BLANC FROM THE RIDGE OF THE MONT HERBETET,

Opposite page 95

(The real height and majesty of Mont Blanc, 15,782 ft., are always best realised when it is seen from the South, as then it towers up in solitary grandeur, flanked by its satellites. It here occupies the centre, the Mont Maudit, 14,669 ft., and the Mont Blanc du Tacul, 13,941 ft., to the right of the spectator, leading the eye on to the depression of the Col du Géant. The long and narrow glacier to the left below Mont Blanc is that of Brouillard, while more to the right is that of the Brenva, one of the most magnificent glaciers in the Alps).

MONT BLANC FROM THE N.W. BUTTRESS OF THE AIGUILLE DU GÉANT,

Opposite page 203

(This view is a pendant to our other view of the Monarch of Mountains, which is here seen from the S.E. across the great opening of the Col du Géant. The summit below Mont Blanc is the Tour Ronde, 12,441 ft. To the left of the spectator and

of Mont Blanc the rocky Aiguille Noire de Pétérét, 12,402 ft., half hidden in mist, leads the eye on over the sharp rock needles named the Dames Anglaises, 11,825 ft.—the last great peak in the Alps to be conquered, for it held out till 1907—to the splendid Aiguille Blanche de Pétérét, 13,482 ft.).

THE MATTERHORN FROM THE COL DES GRANDES
MURAILLES,

Opposite page 239

(Our view shows one of the most impressive aspects of this famous peak, 14,782 ft., being taken from the W.S.W. To the left of the spectator is the so-called 'Zmütt arête,' by which a very difficult route has been forced to the summit, while to the right of this grim ridge are seen the gaunt precipices of the W. face of the peak. More to the right is the S.W. face, up which leads the ordinary route from the Italian side, over the conspicuous shoulder of the Pic Tyndall, to the summit. Far more to the right are the upper snows of the Gorner Glacier, to the right of which rise the highest summits of Monte Rosa itself).

THE JUNGFRAU (BERNESE OBERLAND) FROM THE
EBNEFLUHJOCH,

Opposite page 261

(This is an unusual view of the Jungfrau, 13,669 ft., one of the best-known summits of the Alps. It is taken from the Ebnefluhjoch, 12,304 ft., to its S.W. The cliffs to the left of the spectator fall down into the wild Roththal glen, ill-famed as the haunt of many spirits. Far to the left a bit of the Silberhorn, 12,156 ft., is seen, and then the gap of the Silberlücke. Above, on the shoulder of the Jungfrau, is the snow-field, named 'Hochfirn,' which is traversed on the way up the peak from the Little Scheidegg by way of the Silberlücke, and, still higher, is the top of the Jungfrau itself. The S.E. arête of the peak, up which goes the ordinary route from the Roththalsattel, 12,655 ft., leads the eye down to that depression—the upper portion of the great snow couloir on the S.W. side of which is seen—whence the ridge mounts again to the Roththalhorn, 12,947 ft.)

THE SOUTHERN AIGUILLE D'ARVES (DAUPHINÉ ALPS)
FROM THE COL LOMBARD,

Opposite page 269

From a Photograph by VICTOR DE CESSOLE.

(This summit is the most southerly of the three Aiguilles d'Arves, and is by many believed to be the highest of the three sisters, 11,529 ft. They rise, just in Savoy, between the valleys of St.

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Jean d'Arves, to the N.W., and that of Valloire to the E. Our view shows the S. face of the peak, the two small snow-filled gullies, just to the right hand of the final rocky mass, giving access to the S.E. arête, which is crossed, in order to complete the ascent, first made in 1878 by Mr. Coolidge, by the E. face).

MONTE VISO (COTTIAN ALPS) FROM THE NORTH-EAST,

Opposite page 292

From a Photograph by GUIDO REY.

(Monte Viso, 12,609 ft., is not only the loftiest summit of the Cottian range, but is also the one great peak in the Alps which is mentioned by name by the writers of classical antiquity—it is so conspicuous from the plain of Piedmont that it has always been the 'visible mount.' Our view shows its N.E. face, which was first climbed by Mr. Coolidge in 1881, while below the summit is seen the glacier that is the real source of the Po. To the right of the spectator is the triple-pointed Visolotto, 11,101 ft., also conquered by Mr. Coolidge in 1881).

THE MEIJE (DAUPHINÉ ALPS) FROM THE SOUTH,

Opposite page 297

(The Meije, the second in height of the Dauphiné Alps, is here seen towering above the Etançons Glacier that extends at its S. base. To the left of the spectator is the deep depression of the Brèche de la Meije (10,827 ft.). More to the right is the small hanging glacier, named the Glacier Carré, below which the 'Promontoire' spur stretches far into the Etançons Glacier. To the right of the Glacier Carré is the Grand Pic (13,081 ft.) of the Meije, connected by a toothed ridge with the Pic Central or Doigt de Dieu (13,025 ft.). Beyond the ridge sinks to the Brèche Joseph Turc (12,697 ft.), and then rises to the (invisible) Pic Oriental (12,832 ft.) of the Meije).

THE GRAND COMBIN (CENTRAL PENNINES) FROM THE GRAND TAVÉ,

Opposite page 311

(The Grand Combin rises to the N.E. of the Great St. Bernard Pass, and is the only peak over 14,000 ft.—with the exception of the Finsteraarhorn, 14,026 ft. in the Bernese Oberland—that is to be found outside the Chain of Mont Blanc and the Monte Rosa district. It is here seen, from its least steep side, rising above the glorious Corbassière Glacier. Of the two highest snowey horns, that to the left of the spectator is the Pointe de

Graffeneire, 14,108 ft., and that to the right, the Aiguille du Croissant, 14,164 ft., the culminating summit of the mountain. These two horns are only about 15 minutes' walk distant from each other. More to the right of the spectator is the Combin de Valsorey, 13,600 ft., whence the ridge falls away to the opening of the Col des Maisons Blanches, 11,241 ft., which leads from the very head of the Corbassière Glacier to Bourg St. Pierre, on the Great St. Bernard road).

THE MONTE DELLA DISGRAZIA (BERNINA ALPS) FROM
THE FELLARIA GLACIER, *Opposite page 335*

(This fine peak, 12,067 ft., rises as a great spur to the S.W. of the main Bernina group, and is wholly in Italy. Its N.E. face, with the Ventina Glacier, is here shown, the view being taken from the great Fellaria Glacier, which lies on the S. slope of the central Bernina Alps).

THE ORTLER FROM THE MONTE ZEBRU, *Opposite page 349*

(The Ortler, 12,802 ft., is the culminating summit of the Tyrol, as well as of the Eastern Alps. We here admire its S. side, the eye passing over the depression of the Hochjoch, 11,602 ft.—the highest pass in the Eastern Alps—and then following the very difficult S. arête—first forced in 1875—which leads to the highest snow plateau and so to the corniced summit of the peak. This arête, in its entirety, like the Ortler itself, is wholly in the Tyrol. The slopes to the left of this arête fall towards the Italian Zebreglen. Those to the right descend towards the Tyrolean valley of Suldén, the ridge far to the right being named the 'Hinter Grat,' and having been climbed as early as 1805 on occasion of the second ascent of the peak).

THE PALA DI SAN MARTINO (DOLOMITES) FROM THE
ROSETTA, *Opposite page 366*

(The Pala di San Martino, 9831 ft., has been compared to a mountain castle. It rises to the S.E. of San Martino di Castrozza, and to the N.E. of the village of Primiero. Despite its relatively small height it offers one of the more difficult climbs in the Dolomites, which is effected up the N.W. wall here shown—this is the easiest of the three routes known up the peak, and that by which it was first conquered in 1878. The point in the foreground, between the Rosetta and the peak, is the Cima di Roda, 9121 ft.).

DIAGRAMS SHOWING THE CHIEF HISTORICAL PASSES OF THE ALPS

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MAP

GENERAL MAP OF THE ALPS



THE SCHRECKHORN RANGE (BERNESE OBERLAND) FROM THE FINSTERAARHORN

THE ALPS

IN NATURE AND HISTORY

CHAPTER I

WHAT ARE 'THE ALPS'?

IT is tolerably certain that most readers of these pages will not feel the slightest hesitation in answering the question which forms the title of this chapter. 'The Alps,' so they will state with the utmost confidence, is, of course, the name given to the principal mountain range in Europe. Can there be any doubt on this point? they will ask, with a spice of incredulity. Have we all along been deceived or taken in by this word? or has the writer set us a conundrum? The latter alternative may be at once dismissed. But the former contains a germ of truth, and perhaps also a glimmering idea on the part of the questionists that their belief is not so solidly based as they fondly imagined. No doubt the sense of the term indicated above is that which is most widely accepted by those who do not dwell amid the mountains, and are therefore far more numerous than the Alpine folk. But if we look a little further into the matter, we shall discover that the inhabitants of the Alps attribute to the name we are considering a meaning which is quite distinct from that already noted. When *they* speak of 'the Alps' they have in mind the highland summer pastures, that extend along the mountain slopes below the snow-line, yet at a considerable height above the village itself. To the Alpine folk, as we shall have occasion to point out in the next chapter, 'the Alps' in this sense are of overwhelming

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practical importance, for the highland summer pastures are the centre round which revolves the whole social economy of the mountain dwellers. Were it not for these high pastures how could the cattle be maintained in summer, as the meadows close to the village supply only winter fodder? and if there were no cattle, the entire pastoral life of the Alpine folk would be deprived of its basis, and cease to be possible.

Both senses of the term can be traced back through many centuries. It is not clear, indeed, which is the older or the original meaning of the word. It may be that the mountain dwellers gave the name to the highland summer pastures, and that the early travellers who visited the Alpine valleys learnt from them this new term and inaccurately applied it to the great peaks that tower above these pastures. Or, perhaps, the mountain dwellers themselves, when questioned on the matter, gave their visitors to understand that the great peaks, in the eyes of those over whose homesteads they frowned, were simply continuations or extensions of the summer pastures, perhaps indeed once the site of such pastures in former days, before the frightful increase in the extent of the barren region of ice and snow. The confusion between these two meanings of 'the Alps' finds an exact parallel in that which prevails in the case of the more general words, 'Berg,' 'alpe,' 'montagne,' or 'monte.' To the Alpine folk any of these terms conveys the idea of a highland summer pasture, though the dweller in the plains thinks naturally of the lofty snowy summits.

It would be an interesting line of inquiry to trace out the manner in which the mountain dwellers gradually adopted the sense of the term that had approved itself to the inhabitants of the plains, and which perhaps had first been suggested to the Alpine folk when they received a visit from their more civilised neighbours. But we cannot enter on such fascinating bypaths, and must here content ourselves with remarking that to the Alpine folk the high summits are naturally objects of abhorrence, as ever threatening the scanty fields and meadows in the valley. In the course of time, however, the primitive mountain inhabitants have learnt that the dreaded snowy peaks can become to them

a veritable gold-mine, and are really far more valuable than their much-cherished pastures, for it is the peaks and not the pastures that attract visitors from below to the Alpine glens, and these visitors leave much gold behind them.

In this work the term 'the Alps' will be exclusively employed (save in Chapter II.) to mean the great mountain-chain that forms the most conspicuous physical feature of the continent of Europe. Viewed as a whole, it forms a great wall or rampart that protects Italy on the N. from the rude outside world, and extends, in the form of a crescent, from the shores of the Mediterranean, on the W., to those of the Adriatic, on the E. On either slope the higher ridges gradually sink down till they subside into the plains of Italy, on the S., or of France, Switzerland, and Austria, on the N. But this huge wall or rampart, though forming so lofty and so rugged a barrier, has never been an impassable barrier, whether to human beings, to plants, to animals, or to winds, though the cold masses of air driven from the N. against the wall of the Alps are warmed by the compression, so that while northerly winds do cross the Alps, the southern regions are protected by them from intense and sudden variations of temperature. It can, without difficulty, be turned at either extremity, whether by sea or by comparatively easy routes, such as, on the W., the ancient track along the coast, now known as the Corniche Road, from Genoa to Marseilles, or on the E. by the route through the Birnbaumer Wald (Mons Odra) from Laibach to Görz. As men became bolder, this great barrier was overcome by what are called 'Passes,' that is, not gorges, as this word once meant, but the best marked and lowest depressions that are to be found in the main chain itself. Various causes contributed to make men prefer one 'Pass' to another, so that a few of these depressions became 'The Great Historical Passes of the Alps,' and will be considered in Chapter VIII. below. Originally these passes could only be traversed on foot and at the cost of great hardships, though soon Hospices for the reception of wanderers were set up on or near their summits. Later on, these footpaths were improved, in certain cases, into horse tracks or mule paths, which, from

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the eighteenth century onwards were often replaced by magnificently engineered carriage roads. Nowadays a third stage has been reached in the matter of rendering the passage of the Alps less and less toilsome and perilous. Instead of turning them or crossing them, tunnels are pierced right through their bowels, and so the modern traveller may, in a comfortable sleeping-car, avoid even the sight of the *belles horreurs* which caused his predecessors to shudder. Such tunnels, in the main chain, are those through which run the lines beneath the Col de Tenda, the Mont Cenis (strictly 17 miles to the W. of this pass), the Simplon, the St. Gotthard, and the Hohe Tauern, while a few lines are boldly carried across the passes themselves (so the Brenner and the Pontebba), thus finally superseding footpaths, mule tracks, or carriage roads. The most remarkable instance of this modern development of means of communication *through* the Alps is afforded by the magnificent scheme (just completed) by which a grand Alpine line has been carried from Vienna to Trieste by means of four tunnels beneath the Pyhrn and Hohe Tauern Passes, and through the Karawankas and Julic ranges.

Putting aside the obscure, though interesting, investigation of the migrations of plants and animals across the Alps, let us confine our attention to the men and women, who, not being dwellers in the chain, desired to overcome it for one or other of numerous reasons. From Italy Latin civilisation streamed over the mighty chain, in Roman, in Mediæval, in Renaissance times, and so brought the outer 'barbarians' into the pale first of civilisation, and then of Christianity, in both cases more or less largely by force of arms, the primary object being the political subjection of these outlying lands. The 'barbarians' once tamed, civilised, and converted, streamed in their turn over the Alps to the rich and fascinating land of Italy. Sometimes armies crossed in order to seize on the treasures of the South and occupy its fertile plains. Sometimes merchants brought over the products of the north, or, travelling in the reverse direction, carried from Italy the wares of the East to the hungry and comparatively barren northern

regions. Or again, students flocked over the huge range to saturate their minds with Latin literature and learning. But perhaps, till the modern fashion of pleasure-travelling set in, the largest contingent of Alpine travellers coming from the north was formed by the almost countless throngs of pilgrims, of whatever class or status, on their way to the threshold of the Apostles, and the centre of Latin Christianity. Nor should we forget the official journeys of the mediæval Holy Roman Emperors-elect, on their way to be crowned at Rome. Whatever the object or character of these various wanderers may have been, the result of their journeys was similar—the Alps were regarded no longer as an impassable barrier, but as a barrier which could and might be passed, though at the price of many dangers and privations. The way was thus opened for 'tourists' and 'climbers.'

We have hitherto looked at the Alps as a whole, and as constituting a single great range. But if we go deeper into the matter we shall find that this great range is not made up of a single ridge, as is often shown on the quaint old maps. There is indeed a backbone, but there are also, as in the case of a fish, numerous lateral ribs or ridges that stick out at right angles from it and enclose between them hollows in the shape of valleys and glens. These valleys run up to the central backbone, and afford access to the passes, which lead across it. Thus the system of the Alps is far more complicated than might be imagined at first sight, and this characteristic is grasped at once by any one who pays them a visit.

The backbone, or main watershed, is easily traced throughout nearly its entire length, save that between the Bernina Pass and the Reschen Scheideck Passes it is rather ill-defined, while far away to the E., when it reaches the Dreierherrenspitze, the S.W. extremity of the Gross Venediger group, we must make our choice between following the lofty ridge of the Tauern stretching eastwards, or else the main watershed that runs southwards towards the Hadriatic.

Besides this great backbone, with its projecting ribs and deep valleys, we find that there are other masses, scarcely

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inferior in height, which rise on one or other side of the main chain, and are connected with it by a kind of isthmuses. Such are the Alps of Dauphiné and of the Bernese Oberland, of the Range of the Tödi and the chain bounding the Engadine on the N., of the lofty Ortler group and of the lower Limestone Alps of Bavaria, the Vorarlberg, and Salzburg, as well as of the enchanted Dolomites of the South Tyrol. These great side masses are, as regards their internal structure, similar to the main chain, each possessing a main watershed, with side ridges that enclose valleys between them.

Hence we must always bear in mind that while the Alps form a single continuous chain, there rise, N. and S. of the principal range, great mountain masses, similar in all respects, but not forming independent islands, for they are joined by side ridges to the chief range, and so form an integral portion of it. Before the present writer ever saw the Alps he imagined them to himself as forming one uninterrupted chain. But after he came to explore them in detail he could afford to smile at the old lady who, not having seen them, believed that there were but three great peaks in the Alps, each forming an island—Mont Blanc, the Matterhorn, and Monte Rosa—and so felt quite reassured as to the safety of her beloved son, who had climbed these three summits, and, clearly therefore, could incur no further great dangers.

In these pages we look always at the Alps as they now are, that is, we consider their topography as it now stands, without inquiring either by what processes the actual forms they present were carved out, or the geological constitution of the rocks of which they are composed. Such subjects, most interesting in themselves, belong to the domain of Natural Science, with which we do not meddle in this work.

But we cannot grasp what the Alps really are unless we try to realise that while the skeleton of the Alps is undoubtedly formed of rocks, hard or soft, these rocks, particularly in the case of the loftiest summits, are very largely covered by fields of eternal snow and ice or glaciers (of which more in Chapter III.). The heat of the sun, especially in summer, melts a certain

proportion of these snows, which thus give rise to great rivers or minor streams. These torrents have carved out the valleys through which they flow downwards. All the great Alpine rivers (save apparently the Drave and the Piave, and in a sense the Inn, the Adda and the Adige) have their origin in these eternal snows—the Durance, the Isère, the Rhone, the Aar, the Reuss, the Rhine, and the Linth, are all on the non-Italian slope of the Alps; while on the Italian slope we have the Po, the Tosa, the Ticino, and the Oglio. Sometimes these great rivers (like minor streams) form small lakes on their way, where their bed widens out into a hollow. Several, after their rapid descent from the snow region, form much larger lakes at the points where they reach the level country; such is the origin of the Lakes of Geneva, of Thun, of Brienz, of Lucerne, of Constance, as well as the Lago Maggiore, and the sheets of water known as the Lakes of Lugano, of Como, of Iseo, and of Garda.

Of these huge masses of water those rising on the Italian slope of the Alps lose themselves for the most part in the Mediterranean, either through the Gulf of Genoa, or through the Adriatic Sea. But the rivers at the eastern extremity of the Alps are diverted by a series of low hills towards the Danube (a non-Alpine river), which also receives the Inn, though this rises on the non-Italian slope of the Alps. With the exception of the Rhone (flowing to the Mediterranean) and of the Danube (which falls into the Black Sea) the other rivers rising on the non-Italian slope of the Alps find their way ultimately to the North Sea. Those who like oddities may care to know that there are at least two summits in the Alps which send their waters to each of these three seas. So the waters flowing from the Wytenwasserstock (the lower peak, 9922 ft.) in the Lepontine Alps, help to swell the Mediterranean, the Adriatic, and the North Sea, while Pizzo Lunghino (9121 ft.), N.W. of the Maloja Pass, sends streams to the Adriatic, the North Sea, and the Black Sea.

Having thus obtained a general idea of what 'the Alps' really are in the most usually accepted sense of that term, let

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us now briefly fix the limits by which they are marked off from the Apennines on one side, and the hills that stretch towards the borders of Hungary on the other, reserving a detailed examination of the internal structure of the great chain for Chapter XIII. To settle this question we must make up our mind as to the precise meaning we attach to the name 'Alps.' Are we to use it to signify the whole of the great range, that, stretching roughly from Genoa to Trieste, joins the Apennines to the outliers of the Carpathians? In this case our limits will be, on the W., the Col di Cadibona or d'Altare (1624 ft.), between Turin and Savona, near Genoa, and on the E., the Semmering Pass (3215 ft.), that leads from Vienna past Marburg and Laibach to Trieste. But much of the region thus included is snowless and below any possible snow-line, however varying.

Now, as Mr. John Ball, that great authority on the Alps, pointed out long ago, in common parlance that portion of the great mountain chain is 'Alpine' in character, where the height of the mountains is sufficient to maintain considerable masses of perpetual snow. In short, 'the Alps' are the snowy and loftier part of the range, though of course all their summits do not bear snow, some of the highest being rocky even at the top, while others are snowy, though of comparatively moderate height, rising on side ridges. In these pages the term 'Alps' is employed always in the sense of the High or snowy Alps. If we accept this definition, our limits will be on the W. extremity the Col de Tenda (6145 ft.), leading from Cuneo to Ventimiglia, or by a more devious route, across two lower passes to Nice, while on the E. it will be the long-frequented route over the Radstädter Tauern (5702 ft.), leading from the Enns valley to the Mur valley, and then over the Katschberg (5384 ft.) to the Drave valley. The principal pass is gained on the N. either by the Pyhrn Pass (3100 ft.), leading from Vienna past Linz to Liezen in the Enns valley, or through the Lueg gorge direct from Salzburg. But the natural continuation of the Radstädter Tauern to the S., over the Predil or Pontebba Passes, would exclude from the Alps all their

South-Eastern group. So from Villach in the Drave valley we must take a great sweep to the E. and S.E. past Klagenfurt and down the Drave valley to Marburg, and thence back along the last bit of the Semmering Railway past Cilli and Laibach to Trieste.

Let us now sum up the answer to the question we propounded at the head of this chapter. 'The Alps' are the higher or snowy portion of the great mountain range that shelters Italy from the outer world, and is crossed by a number of passes. This range is limited by the Col de Tenda (W.) and the Radstädter Tauern (E.), while it is composed of a main watershed and other half-isolated groups, all, like the main ridge, sending out side ridges, that enclose valleys, down which rush the torrents (produced by the melting of the snows) many of which spread themselves out into great lakes as they reach the plains, and before they fall into one or the other sea.

CHAPTER II

THE PASTURES OF THE ALPS

IN any of the higher Alpine valleys we notice at once, above the belt of forest that shelters the scattered homesteads in and round the village, a succession of grassy slopes which mount towards the region of eternal snow. These slopes are named 'Alps' by the mountain dwellers, and are used as summer pastures by them for their cattle, which otherwise could not subsist on the fodder obtained on the lower meadows, this being quite insufficient for their needs during the long winter. Nowadays the lowest bit of these pastures has often passed into private ownership (each bit is called a 'Vorsass,' or 'Voralp,' or 'Mayen'), and is used for grazing the cattle of the owner in spring and autumn, while the hay mown there in summer is reserved for their winter needs. But the rest of these Alpine pastures is exclusively devoted to the pasturing of cattle in summer, the higher portions being specially given over to goats and sheep, while the cows, as the most important item, occupy the middle and most productive stretches. These bear different names in different portions of the chain of the Alps, in which they are found everywhere—in the German-speaking regions the term used is 'Alp' or 'Berg,' the form 'Alm' being characteristic of the Tyrol; in the French-speaking districts, 'alpe' and 'montagne' are the ordinary names, while 'alpe' or 'monte' are the names found in the Italian-speaking regions. Probably these summer pastures date back to the first settlements in the Alpine valleys. The earliest instances known to the present writer are the 'Alpes in Cenisio' (the pastures on the plain of the Mont Cenis Pass) mentioned in

739; the Sämbtiser Alp on the Säntis, in Appenzell, heard of in 868; and the Macugnaga Alp, at the head of the Val Anzasca, which in 999 was the subject of an exchange between the Archbishop of Milan and the monks of Arona. Sometimes, as in the Dauphiné and the Engadine, the sheep pastures are let out to shepherds from Provence or the Bergamasque valleys respectively. In other cases the pastures in a mountain valley have been alienated to far-distant villages (this is not unfrequent in some parts of the Tyrol, while in Switzerland the Oberaar Alp, near the Grimsel, belongs to the village of Törbel, above Stalden, on the Zermatt railway). A few are in the hands of great monasteries (*e.g.* Engelberg and Einsiedeln) or of the State, while others belong to private individuals or societies. But, speaking generally, we may say that, as a rule, the highland summer pastures in an Alpine valley belong to the inhabitants of that valley.

In certain cases the men of one valley have encroached on the pastures of their neighbours, and have appropriated them, though not included within the limits of their own proper district. This dislocation, no doubt, goes far back in point of date, and was in each case the result of a struggle between rival herdsmen. We can trace a struggle of this kind best in the valley of Engelberg, where the Blacken Alp, at the very head of the glen, has never belonged to the monastery, but to Attinghausen in Uri (opposite Altdorf); while the pastures of the Nieder Surenen Alp below it were also secured by the men of the same village after a long drawn-out contest with the monks that lasted from 1273 to 1513. The Uri men, restless perhaps within the narrow limits to which Nature has confined them, still own other pastures that topographically lie in other regions—so the men of Spiringen, above Altdorf, enjoy the splendid pastures (said to be the finest in Switzerland) of the Urnerboden, on the Glarus side of the Klausen Pass, above Altdorf, though the men of Tessin have succeeded in keeping hold of the pastures on the N. slope of the St. Gotthard, those between the pass and Hospenthal. Other cases of a similar kind are the pastures on the Meiringen side of the Great

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Scheidegg, which (nearly down to Rosenlauri) belong to Grindelwald, and those on the N. side of the Gemmi (including the Schwarzenbach inn) are held by Leukerbad, in the Vallais, while the case of the Oberaar Alp has been mentioned above. So again the Fenga or Fimber Alp, on the proper Tyrolese side of the chain, is reckoned as Swiss, and has for ages belonged to Remüs and Sent, both in the Lower Engadine; while the Gross Fermunt pastures at the head of the Vorarlberg glen of Montafon belong to Ardez, also in the Lower Engadine.

It is reckoned that in Switzerland (where special attention is paid to the subject) there are about 4478 'Alps' at present, of an estimated capital value of rather over £3,000,000, and capable of supporting some 270,389 cattle in summer. There may, of course, be more than one 'Alp' in any given valley; e.g. in that of Grindelwald there are seven.

These summer pastures are only grazed for about three months annually, the cattle going up thither towards the middle or end of June, and coming down about the end of September. But during this time the beasts do not always remain on the same portion of the pasture. On every 'Alp' there are generally two or three (or even four) sets of huts, situated respectively on the two, or three, or four horizontal strips of pasture (each called a 'Staffel') into which that 'Alp' is divided by a wooden hedge. The cattle start in June on the lowest strip, work gradually upwards to the highest (where they spend three weeks or so in July and August), halt for some time on the way down at the middle set of huts, and finish the summer at the lowest set of all. The milk given by each cow is (unless it is specially fetched by the owner of that cow) measured daily, and at the end of the season the owner of each cow has the right to receive an amount of cheese corresponding to the milk given by that cow, after deducting the allowance of cheese, milk, etc., which the cheesemaker (the 'Senn' or 'fruitier') and his men are entitled to receive, as part of their wages. The cheeses are made daily, and are kept in small huts (called 'Speicher'), with short stone legs, which are easily to be distinguished on each 'Alp' from those

wherein the herdsmen sleep (each of these is a 'chalet' properly so called), or from the stables used in case of bad weather or on exceptional occasions.

There is an obvious danger, at any rate in the case of pastures not owned by private individuals, that more cows will be sent up annually than the particular pasture in question can support without permanent damage. Hence an official estimate is made, from time to time, sometimes at very long intervals, of the proper number of cows that should be sent up. The amount of pasture required to support a single cow for the summer is technically termed a 'Kuhstoss,' or 'cow's portion,' which is reckoned to suffice for two heifers, three calves or sheep, four pigs, or eight goats (the numbers vary on different 'Alps'), in case any one entitled to send up a cow prefers to graze in a particular summer any of the animals just named.

Speaking quite generally (for customs and regulations differ widely even in the same region), it may be said that the persons entitled to rights of pasture must be burghers of the village to which the particular pasture belongs. Sometimes they may let out their right ('Kuhrecht') for the summer, or may exchange it for rights on some other 'Alp,' so that the 'Besetzerschaft' (occupiers) of an 'Alp' in any given summer are not necessarily identical with the 'Besitzerschaft' (the owners of the rights of pasture). These rights of pasture belong, as stated above, to the burghers of that particular village or 'commune,' but not necessarily to all burghers, for in some cases they are attached to the possession of a particular bit of land (entered in an official Register), with which the right passes when the land is sold, though in other cases the rights belong to each male burgher of full age, as an individual, and not as a land-owner. In this way no burgher can keep more cattle in winter than he has a right to pasture on the 'Alp' of his village in summer, unless (what such men are generally shy of doing, partly through limited means) he buys hay for the extra cattle, or owns meadow-land enough to support them, without needing to utilise the summer pastures, or leases 'cow-rights' from others.

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Thus it will be seen that as cattle form the main riches of every Alpine valley and village, the summer pastures are to that valley or village and its inhabitants the pivot on which the whole life of the people turns. No pastures, no cattle; few pastures, few cattle.



THE MÄRJEENSEE
(GROSS ALETSCHE GLACIER)

CHAPTER III

THE SNOWY REGION OF THE ALPS

GIBBON tells us in his *Autobiography* that about 1783 'the fashion of viewing the mountains and Glaciers' had attracted to his loved retreat at Lausanne many foreign visitors on their way to wonder at these marvels. He was thinking, no doubt, more especially of the glaciers of the valley of Chamonix. But in any case his remark proves that the snowy region of the Alps no longer inspired dread and awe, but rather a fearful curiosity to see with one's own eyes the most extensive tract of eternal snow to be found in Europe, that which covered the loftiest summits of the Alps. This new fashion, among other results, helped to familiarise the dwellers in the plains with the wonders of the ice-world, and so to give them a juster idea of what this frozen world really was. Now this was a result much to be desired, for the older writers held some very quaint notions on the subject. Pliny, Seneca, St. Augustine of Hippo, and Claudian all believed that a crystal was simply very hard frozen ice. This strange view, combated already by Solinus, was still held by certain persons in the sixteenth century, says Josias Simler (1530-1576), who is doubtful on the point, though his contemporaries, Sebastian Münster (1489-1552) and Johannes Stumpf (1500-1566), were quite sure that crystals were really stones; these (they held), though often found in the Alps, had nothing to do with ice, which, however, they resembled closely as to brilliance and purity. Another delusion on the part of the older writers was that the snowy region of the Alps constituted the one vast sea of ice, hardly, if ever, interrupted at any point whatsoever. Hence, when it was absolutely necessary to

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force a way across this frozen ocean, the point at which this was done was called simply 'the Glacier.' This name was especially applied to the St. Théodule Pass (leading from Zermatt to the valley of Aosta), whether under the name 'Der Gletscher' by Giles Tschudi (1505-1572), who himself actually crossed it about 1528, as well as by Münster and Stumpf, or under that of 'Rosa' by Simler; the last-named writer here translates the German term by a word borrowed from the patois of the valley of Aosta, meaning a 'glacier' and variously written 'roisa,' 'roësa,' 'ruise,' or 'reuse,' and undoubtedly the original of the name Monte Rosa, which is the culminating point of that great Sea of Ice. Now at first sight, if we look upwards from a valley, we are strongly inclined to believe in this Sea of Ice, not merely because of its superficial resemblance to the sea of water, but because from this frozen ocean, hidden in mysterious retreats, and lifted high above the workaday world, there flow down into the valley great streams of ice, which resemble rivers, though flowing from and not into the icy waste. It is only when we come to explore ourselves the snowy region that we grasp the fact that the Sea of Ice is by no means unbroken, but forms a series of minor seas, separated, now at any rate, from each other by extensive snowless tracts of ground. Yet, from the historical, or rather prehistoric, point of view, this theory of a Sea of Ice has an element of truth in it, for do not scientific men now impress upon us the fact that once, in the Ice Age, the whole of Europe was really an unbroken Sea of Ice, though, owing to the retreat of the ice, this sea is now confined to the highest portions of the Alpine chain?

Alpine glaciers form such a striking feature of the scenery of a high mountain valley that they could not possibly be overlooked, for they formed such immovable boundaries. It is possible that the 'rupes alba' of the charter of 1091 founding the Benedictine Priory of Chamonix refers to some real 'white rock,' and not (as the present writer firmly believes) to the glittering snows of Mont Blanc. But a little later, even if we put on one side two documents, said to be forged, and dated 1146 and 1173, we have certain mention of the glaciers of Grind-

elwald in 1220, in 1246, in 1247, and in 1252, in each case as one of the limits of a piece of land. In 1353 we hear of the 'mountains called Glaciers, in German Gletscher,' which extend at the head of the Simmenthal. In the sixteenth century the three Swiss topographical writers already named, Münster (1544), Stumpf (1548), and Simler (1574), as well as Ulrich Campell (about 1573), give long accounts of glaciers, but apparently always at second hand. Campell naturally dwells on those in the Lower Engadine (he was a native of Sūs), but the others all base their descriptions on the two Grindelwald glaciers. These, in fact, were so well seen (alas, they have greatly shrunk since those days !) from a very accessible valley, that they are generally taken as the type of glaciers, as we see from the writings of Thomas Schöpf (1577), H. R. Rebmann (1606), Matthew Merian (1642), J. J. Wagner (1680), J. H. Hottinger (1706), J. J. Scheuchzer (1723), and A. von Haller (1732), for it is not till the time of J. G. Altmann (1751) and of G. S. Gruner (1760) that we find detailed descriptions of glaciers elsewhere in the Alps. Merian first, as far as the present writer is aware, gives (1642) an engraving of these glaciers (probably the first ever to be so figured), and his plate long served as the typical representation of these marvellous natural phenomena. It was most likely the source of the quaint illustration that accompanies the second earliest (1673-4) account of glaciers (always those of Grindelwald) which was published in English. As those early English accounts are very little known, save to a few students, we venture to transcribe them for the benefit of our readers; all three appeared in the *Philosophical Transactions* of the Royal Society.

1. *Phil. Trans.*, No. 49, pp. 982-3, June 21, 1669.

Extract of a Letter, Written by Mr. Muraltus [Johannes von M., 1645-1733] of Zurich to M. Haak [Theodore Haak, 1605-1690, an original member of the Royal Society, 1663], a Fellow of the R. Society, concerning the Icy and Chrystallin Mountains of Helvetia, call'd the Gletscher. English'd out of Latin by the Publisher, as follows:—

The highest Icy Mountains of Helvetia about Valesia and Augusta

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[the Vallais and Aosta, here wrongly placed] in the canton of Bern ; about *Taminium* [Tamins in the Grisons] and *Tavetsch* [Sedrun], of the *Rhaetians*, are alwayes seen cover'd with Snow. The Snow, melted by the heat of the Summer, other Snow being faln within a little while after, is hardned into Ice, which by little and little in a long tract of time depurating it-self turns into a Stone, not yeilding in hardness & clearness to Chrystall. Such Stones closely Joyned and compacted together compose a whole Mountain, and that a very firm one ; though in Summer-time the Country-people have observed it to burst asunder with great cracking, Thunder-like ; which is also known to Hunters to their great cost, forasmuch as such cracks and openings, being by the Winds covered with Snow, are the death of those, that pass over them.

At the foot of these mountains are with great labour digg'd out Chrystals, which are found among other fossils, of two sorts and colors ; some of them are darkish and troubled, which by some are call'd the Chrystal-ore, to be plenteously found in the ascent of Mount *Gotthard* ; others, transparent, very pure and clear as Venice-glass ; sexangular, great and small : as in the mountains about *Valesia*, and the town call'd *Urselen* [Andermatt in the Ursern valley, and near the foot of the ascent to the St. Gotthard Pass] at the foot of the Hill *Schelenin* [Schöllenen gorge] they are digg'd out and sold at a good rate. Of this latter kind, my Parents, four years agoe, transmitted a very bigg and fair one to *Milan* for 80 pound sterling.

This is, what I have observed about these Hills ; What I shall farther learn of the people, inhabiting thereabout, to whom I have written a month since, I shall impart to you.

In *September* 1668.

2. *Phil. Trans.*, No. 100, pp. 6191-2, February 9, 1673-4.

A farther Description and Representation of the Icy Mountain, called the Gletscher, in the canton of Berne in Helvetia ; which was formerly taken notice of in Numb. 49 of these Tracts.

This account was imparted to us from *Paris* by that worthy and obliging person, Monsieur *Justel* [Henri Justel, 1620-1693, Superintendent of the Royal Library, St. James' Palace, London], who had received it from a trusty hand living upon the place, as follows ; The Icy Mountain, of which I have sent you the Scheme (*See* Tab. 2) deserves to be view'd. The letter *A* signifies the Mountain it self [the Lower Grindelwald glacier], which is very high, and extends it self

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every year more and more over the neighbouring meadows, by increments that make a great noise and cracking. There are great holes and caverns, which are made when the Ice bursts; which happens at all times, but especially in the Dog-days. Hunters do there hang up their game they take during the great heat, to make it keep sweet by that means. Very little of the surface melts in Summer, and all freezeth again in the night. When the Sun shineth, there is seen such a variety of colors as in a Prism.

B. is a rivolet [the Lüttschine], issuing forth from under the Ice, which is pretty deep and extremely cold.

C. are the Hutts, that were built at the beginning, at a considerable distance from the Mountain; but at present they are nigh to it by reason of the continued increase which this Ice maketh.

There is such an other Mountain near *Geneva* [the chain of Mont Blanc] and upon the *Alpes* [that is, the main ridge of the Alps]. A certain *Capucin* told me, he had been upon the highest of these mountains with a Trader in Crystal, who having driven his hammer into one of these Rocks, and found it hollow and resonant, made a hole into it, and thence drew out a substance like *Talk*; which to him was a sign there was Crystal. After which he made a great hole with Gunpowder, and found Rock-crystal in it.

3. *Phil. Trans.*, No. 320, pp. 316-17, March and April, 1709.

Part of a Letter from William Burnet, Esq.; F.R.S. [son of the celebrated bishop, Gilbert Burnet], to *Dr. Hans Sloane*, R.S. Secr., concerning the *Icy Mountains of Switzerland*.

Geneva, October 12, 1708.

SIR,—After I had been at *Zurich* I resolved to go my self and see the Mountains of Ice in *Switzerland*. Accordingly I went to the *Grindlewald*, a Mountain two Days journey from *Bern*. There I saw, between two Mountains, like a River of Ice, which divides it self in two Branches, and in its way from the Top of the Mountains to the bottom swells in vast Heaps, some bigger than *St. Paul's* church. The Original of which seems to have been this. These Mountains are covered all the Year with Snow on their Tops; this Snow has been melted in the Summer, and has fallen to the Bottom where the sun never reaches: There it has Frozen, which every Body knows happens more easily to melted Snow than ordinary Water. Thus every Year it has increased, till it has touched the very Top. The reason why the Water has always frozen, tho' the Sun in the middle of the Mountain, and higher, shines upon it some

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part of the Day, is that the melted Water goes under the Ice already formed and there Freezes, and so expanding it self raises the Ice above it, and sometimes makes Cracks in it, that frighten the whole Neighbourhood : The reason appears plainly, because the upper Surface being solid, cannot be dilated without making great Chinks, and that with a terrible noise. They told me, upon the Place, that every seven Years the Mountain increases, and the next seven decreases ; but I doubt their Observation is not exact, and I suspect that they say it, to seem to know something singular. Besides there are none there that have themselves observed it long enough, to affirm any thing of that kind certainly. If there is any ground in that Observation, it seems to be, that in the hottest Summers it increases, and the more moderate ones it decreases, there being then less melted Snow ; in which case it is at present, as we know of late the Summers have been moderate (see *Philosoph. Transact.*, Numb. 49 and 100).

Half a century or so after these last words were written the exploration of glaciers and the snowy region of the Alps in general was taken in hand, as we shall see in Chapter ix. below. Still later their true nature and principal characteristics were ascertained by a long-continued series of personal investigations, carried out by a number of well-trained men, who personally studied the puzzling phenomena on the ice-fields themselves.

Let us therefore sum up briefly the chief well-established results which have been the consequence of these careful investigations.

The snowy region of the Alps naturally means that portion of the Alpine chain which is covered with 'perpetual snow.' But the line of distinction between the snowless and the snowy regions is not a hard-and-fast line. Ideally the 'snow-line' is the point at which the amount of snow that melts annually exactly equals the amount that has fallen. But in any district of the Alps, even in any single Alpine valley, this ideal limit varies according to the exposure of a slope to the rays of the sun, to the various winds, to the geological nature of the mountain, etc., and is not determined once for all by the mere elevation above the sea-level. Such local variations can be

well seen when the weather has cleared after a snow-fall in some Alpine valley in summer or early autumn. When the clouds lift, the line right round the valley is as even as if carved with a sharp knife. But as soon as the clouds vanish, the snow melts more rapidly in one spot than in another, and the line, before so even, becomes extraordinarily uneven and irregular, as if cut away by a huge jagged knife.

Abandoning therefore any attempt to fix with scientific precision the snow-line in any given case, it is, of course, certain that high up (to use a rather vague phrase) there is always snow lying on the mountains, though the amount varies even here from day to day. Lower down this precipitation takes the form of rain, but high up it becomes snow owing to the fall in the temperature of the air as one ascends the mountain slopes. But snow does not constitute a glacier. Glacier ice has indeed once been snow, but it has passed through the intermediate stage of 'névé' or 'Firn' before becoming ice. Hence we must distinguish carefully between *snow*, *névé*, and *ice*, though all three are different forms of water.

The *snow* that falls high up on the mountain slopes is dry, loose, fine, and granular. Some of it melts, while some is carried away by strong winds and then forms the 'tourmentes' or 'Guxen,' those storms which are the dread of the mountain dweller or mountain climber, just as are the sand-storms in the desert to the inhabitants of such regions. But a certain proportion of the snow that falls in winter remains on the mountains, whether in hollows, or on slopes whence it is brought down to those hollows by what are called 'avalanches.' Such is the first stage.

Gradually the heat of the sun's rays by day and the fall in the temperature of the air at night weld these loose grains or particles more or less firmly together, the upper surface indeed melting to some extent, but the main mass becoming hard and compact. The body thus formed acquires weight and moves slowly more or less down the mountain-side, becoming ever more compact and homogeneous. Thus the 'snow' of the highest regions is converted into 'névé' or 'Firn.' As this

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mass is not fluid, like water, it is rent asunder when it moves over the steep rock slope that forms its bed, and thus not merely are crevasses or holes formed in it, but also the peculiar phenomenon known as 'séracs.' These are huge rectangular blocks or squares, rising independent of each other amid yawning chasms where the descent is steep, and having a singular creamy tint, to which they owe their name of 'séracs,' that being the local term used at Chamonix for the shape assumed by the 'second cheese' or whey, when compressed in rectangular boxes.

Now the 'névé' is not yet a '*glacier*,' but it is the raw material of a glacier, or the feeder of a glacier, though here and there (as in the case of the Blaugletscherli, near Grindelwald) true ice is never formed, so that the so-called glacier is really but a névé. While the névé continues its downward course, it is squeezed and confined more and more as it works its way through a narrow gorge towards the valley or highland plain. This enormous pressure converts the hard snow of the névé into real pure ice, and so into a '*glacier*.' In a glacier as in a névé the rents caused by moving down a steep slope are called 'crevasses' or 'Schründe,' while a particular kind of rent, namely where a steep upper slope of either meets a more level field of one or the other, is distinguished by the special name of 'Bergschrund' or 'rimaye.'

Now the surface of a glacier is not smooth and level, like a skating-rink. It rises, even where roughly level, in many humps or hummocks, caused in general by the varying action of the sun's rays on the surface according as it is protected by sand or stones, or not protected. Sometimes these humps are cones of some feet in height, and are capped by a great boulder, which has intercepted the action of the sun's rays; these ice pillars, crowned by a great rock, are known as *Glacier Tables*, and are among the most striking of glacial phenomena. Elsewhere stones lie on the surface of the ice; the little streams that run over the surface in the daytime cannot pursue a straight course perpendicular to the glacier, but are forced to hollow out crooked channels for themselves. Now when a stream of this



A CREVASSE ON THE DZASSET GLACIER (EASTERN GRAIANS)

kind meets with a hole in the ice, still more when the hole is large enough to be dignified by the name of a crevasse, the water naturally seeks an issue towards the rock-bed beneath the glacier. The falling water little by little wears away the ice and enlarges this hole, so that a vertical shaft is formed down which the stream rushes in a waterfall. The waterfalls so formed are called 'moulins' or 'Glacier Mills.' Should the glacier we are studying descend over a steep underlying bed of rock, the ice (as in the case of the 'névé') is rent asunder and forms 'crevasses,' while it is also broken in the steepest parts into 'ice-falls.' Thus an 'ice-fall' is always composed of towers or pinnacles of ice, which display the wonderful azure tint characteristic of pure ice, which is very easily distinguished from the dull creamy hue of the square masses formed by a névé during a similar steep descent.

Now it is beyond question that glaciers (like the névés above, which are their feeders) move downwards towards the valleys. The *fact* of this movement was finally established as late as the forties of the nineteenth century by a few persevering investigators, among whom perhaps the chief was the Scotchman, J. D. Forbes (1809-1868), who made a series of exact measurements on the Mer de Glace at Chamonix during the summer of 1842. The precise physical *cause* of this downward movement is still somewhat of a puzzle, and many theories have been propounded to explain it. Here we need only assume the generally admitted fact of downward movement. Now ice, though plastic and therefore yielding to pressure, cannot be stretched, but breaks with tension. This is the real cause of crevasses. As in the case of a river, the centre of a glacier moves more quickly than the sides, which are retarded by the friction against the rock-walls that confine them, while it is also true that the surface layer of ice moves more quickly than those which underlie it, this too being owing to friction against the rock-bed of the glacier. These strains in different directions give rise to various kinds of crevasses, some transverse (this is the most usual case), some marginal, some longitudinal. Of course, as the inclination of the rock-bed diminishes, the crevasses and ice-falls close up, and

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the ice becomes once again more or less level and homogeneous.

Another consequence of the fact that glaciers do really move is that the weighty mass of ice leaves traces of its action on the rock-bed. It grinds out the natural bosses and humps on the rock, and so gives rise to what (when they can be seen after a glacier has retreated) are called 'roches moutonnées,' for they are rounded like the back of sheep. If, however, as often happens, fragments of some of the harder kinds of rock fall through the crevasses to the rock-bed of the glacier, the huge mass of ice above them carries them on in its course and forces them to scratch deep grooves or furrows, known as 'striations,' in that rock-bed.

Once and once only in the course of my active Alpine career of thirty-four years did I ever see this double process at work, or rather, as the glacier moves very slowly, realise how it was carried out. We were *descending* the lower ice-fall on the Wengern Alp side of the Jungfrauoch. One tremendous crevasse could neither be turned nor crossed. We were absolutely stopped. But our brave and valiant leader, the famous guide, Christian Almer, of Grindelwald, did not hesitate. He caused a staircase to be cut down the side of the great crevasse so that we could reach the rock-bed beneath the glacier. Then he led us a short distance *over* this rock-bed till he could cut another staircase up the side of a crevasse lower than our foe, and so we regained the surface of the ice after half an hour spent in the bowels of the glacier. That took place in July 1872, and I have never forgotten how we actually saw *in situ* the rock-bed being smoothed out and at the same time grooved by the fragments of harder rock that were forced along it. Few mountaineers can have been privileged to enjoy such a strange sight, which was worth more than tons of theory and book-reading.

At a certain point in the downward progress of a glacier the ice of which it is composed melts more rapidly than the increase in bulk due to the fresh amount borne down annually to the snout of the glacier. The glacier thus dissolves into water, which joins the underground streams flowing out from beneath it. Together

they form roaring torrents that sometimes fertilise mountain valleys, sometimes cause great ravages therein. The water is of a milky hue owing to the particles of rock and fine dust that are borne down with it from the rock-bed beneath the glacier. These mountain torrents join others, and form both waterfalls and lakes before the greater river, the result of their junction (and most Alpine rivers rise in glaciers), loses itself in one or other sea.

We have spoken several times of rocks and stones on the glacier. These, of course, have fallen from above. When great masses of rock and stones fall on the edge of a glacier they are called 'lateral moraines' ('Gandegg' is the Bernese name for moraines in general), while the accumulations of rubbish at the foot of a glacier form the 'terminal moraine.' When two glacier arms unite, the lateral moraine of each become the 'medial moraine' (or 'Gufer,' especially if composed of *débris* and *not* boulders) of the larger stream formed by their union. Ancient moraines found in spots now far away from any glaciers, help, with 'roches moutonnées' and 'striations,' to prove the existence of former glaciers in that district. Another proof is the existence of huge boulders, composed of rocks not found in that region, and so presumed to have once been brought down on a now vanished glacier, these rock islands being known as 'erratic boulders.' It is said that B. F. Kuhn was the first, in an essay published in 1787, to have conjectured the former great extension of glaciers in the Alps, ancient moraines having put him on the right track. In 1802 and in 1816 John Playfair was independently led to the same conclusion by the study of 'erratic boulders,' while in 1821 I. Venetz (his essay appeared in print in 1833 only) brought together documentary proofs of the advance and retreat of Swiss glaciers in historical times. It is possible that Venetz either first learnt of this fruitful theory from, or was confirmed in it by, the acute observations made by a simple peasant, carpenter and hunter, of Lourtier, in the Val de Bagnes in the Vallais, J. P. Perraudin (1767-1858). He is known to have told Charpentier in 1815 that the existence of what were later called 'erratic boulders' had forced on him the belief that a huge glacier once extended down the Dranse valley as far as Martigny, while a

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MS. note of his (dated in 1818) has been preserved in which he declares that, owing to striations (he calls them 'wounds made in the living rock') on certain rocks (now far from existing glaciers) in his native valley, he felt certain that the Val de Bagnes had once been occupied by a great glacier. All honour to this humble observer '*avant la lettre*,' whose name is briefly mentioned by Venetz (1821) and by Charpentier (1841)—both personal acquaintances of his—but whose real merits have only lately (1899) been appreciated at their proper value by Professor F. A. Forel, the great Swiss authority on glaciers. A rival of Perraudin's was the Chamonix guide, Marie Deville, who is said to have come to a similar conclusion in 1815, through the evidence of 'erratic boulders' and 'striations' on the rocks, both found in spots now far distant from any existing glaciers.

Who can tell how soon glaciers that at present survive will be known only by the rubbish heaps and striations that they have left behind them? Practically all the Alpine glaciers are in retreat, though occasionally some one or the other advances for a short period. There are still, in 1908, glaciers proper in every district of the chain of the Alps, even in the Maritime Alps, at one extremity, and in the Dolomites and the Julic Alps at the other, though on the more northerly summits (such as Glärnisch—the Säntis has only a '*névé*') and on the Zugspitze they are not of any very great extent. The most extensive tracts of glacier ice are to be found in the Dauphiné Alps, the Graians, the Mont Blanc chain and the Pennines, the Bernese Oberland, the Bernina Alps, the Adamello group, the Ortler and Oetzthal ranges, and the Tauern chain more to the E. The number of glaciers is not known precisely, nor even the approximate area they cover, though rough estimates have been made of the glaciers in some specified groups. The three longest glaciers in the Alps are all in the Bernese Oberland, though this range does not form part of the main chain of the Alps—the Great Aletsch glacier is $16\frac{1}{2}$ miles in length, the Unteraar and the Fiescher each 10 miles, and the Gauli glacier is $8\frac{1}{2}$ miles. The Gorner glacier and the Mer de Glace at Chamonix can only boast of $9\frac{1}{4}$ miles, the next

longest glacier in the Mont Blanc chain being that of Argentière ($6\frac{1}{2}$ miles), while the Lower Grindelwald glacier is $6\frac{1}{4}$ miles long. In the Eastern Alps the Pasterze glacier (Gross Glockner) heads the list with rather over $6\frac{1}{4}$ miles, followed closely by two of the Oetzthal glaciers, the Gepatsch ($6\frac{1}{4}$ miles), and the Hintereis (6 miles).

Various terms are employed to designate glaciers. The English word is the French term (pronounced differently), while the Italian is 'ghiacciaio' (more rarely 'ruise') and the Swiss 'Gletscher.' In the Eastern Alps 'Ferner,' 'vedretta,' and 'Kees' (the last named is special to Carinthia) are the names employed. Rarely found names are 'Biegno' (Vallais) and 'vadret' (Engadine).

Alpine history is rich in stories of adventures on glaciers, especially as to the unlucky individuals who have had the misfortune to fall into crevasses. It is well known that after a certain lapse of years objects dropped high up reappear at a much lower level, so that various relics of the Hamel (1820) and Arkwright accidents (1866)—both of which happened on the 'Ancien Passage' not far from the summit of Mont Blanc—came to light in 1861-3 and in 1897 respectively on the Bossons glacier, far below the scene of the catastrophe. On September 1, 1886, the writer's Bernese guide and himself made the discovery of the remains of some hunter or shepherd. We were descending the great glaciers at the head of the Val de Rhêmes (one of the southern tributaries of the Aosta valley) when, at the top of the great moraine at the foot of that glacier, our attention was attracted by an odd series of regular curves on the surface of the ice, each marked out by small dark objects. On closer examination these proved to be fragments of a skull and other bones, of a felt hat, of a wooden shoe with a nail in it, a bit of cloth, a piece of a stick, etc. Clearly they were the relics of some lonely wanderer who had perished on this huge glacier years before. I reported our discovery to our host, the curé at Notre Dame de Rhêmes, that evening. He told me that similar discoveries had been previously made, and that on one occasion, with the relics, a piece of money, dating from the

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seventeenth or eighteenth century, had come to light, thus showing how long ago the misfortune had occurred.

One of the most extraordinary escapes from a fall into a crevasse is that of Christian Bohren on the Upper Grindelwald glacier on July 7, 1787. Authentic records of it have been preserved, so that the main facts are beyond dispute. On the day named, Bohren, with his servant, Christian Inäbnit, was leading some sheep and goats from a pasture on the slopes of the Wetterhorn to another on those of the Mettenberg. Inäbnit was walking in front, when he heard a cry, and turning round, saw that his master had disappeared, doubtless down a deep crevasse. After having placed the animals in safety, Inäbnit ran back, and, according to his own account, on calling down a crevasse near the presumed scene of the mishap, received an answer to the effect that Bohren was alive but had a broken arm. Bohren's version (published in August 1787 and repeated verbally by him in 1810) of what followed is, that finding he could stand upright, he soon noticed a mass of water flowing near him. The temperature seemed to be too high for this to be ice-water, so that he at once conjectured that by following its upward course he would gain the outer air. This he did, and on gaining the right edge of the glacier found that the stream in question was the Weissbach, a torrent that descends from the Wetterhorn slopes to the spot known as 'im Schlupf,' between the Enge and the Zymbach's Platten or Tritten, just where it is still usual to cross the level ice between the two lower ice-falls. Managing, with his broken arm, nearly to reach the valley, he met the men who had come up with ropes and ladders to rescue him. The servant's version (reported by his son) is slightly different. On reaching the right edge of the glacier again, it occurred to him that perhaps by following the downward course of the Weissbach, he might find his master. This he did, and so rescued him from his alarming predicament. The estimates of the depth of the crevasse vary from 64 to 25 ft. In any case the means of issue was afforded by the Weissbach, and not (as often is stated) by the Lutschine at the very foot of the glacier. Bohren's estimate of the

distance he traversed under the ice is 130 ft. (not steps, as has sometimes been said), while he apparently suffered no permanent harm from his adventure, as he died in 1817, at the age of sixty-two. One of his grandsons was the well-known guide, Peter Bohren, nicknamed the 'Gletscherwolf' (died in 1882).

Some of the customs and laws as to glaciers are curious. Most quaint was the fifteenth-century feudal tenure by which the inhabitants of certain villages of the Ayas valley (a tributary of the Val d'Aosta) were bound to cover with earth the shining glacier on the Becca Torché (9892 ft.)—so that the reflection from the glittering snows might not injure the complexions of the ladies of the house of Challant, to which the glen belongs! In more modern days the question of the legal ownership of glaciers has become a matter of practical interest. Much ice is taken from certain glaciers for the use of cities in the plains: Who has the right to grant concessions? Tolls are often imposed on visitors penetrating into the artificially made caverns at the base of other glaciers: Who should authorise these tolls? By the retreat of the same glaciers, considerable tracts of land are uncovered: To whom do they belong? A good deal of ink has been wasted by Alpine jurists in elaborating ingenious theories to meet these cases. In practice it has been held most generally that it is the State which is the owner of the glaciers within its limits, rather than the communes—so in Italy, in France, in the Tyrol, and in the duchy of Salzburg. In Switzerland it is the Canton which is the State, so that in Vallais, Vaud, and Bern the Canton exercises the rights of ownership. In Vaud the commune of Ormonts dessus declined in 1863 to allow the Diablerets glaciers to be reckoned among the lands of the commune, objecting to pay for the measuring of these fields of ice with a view to future taxation. On the other hand, the commune of Bex in the same Canton did lease the right to take ice from the glaciers in its territory (1863), but in 1864 the cantonal authorities successfully resisted this claim, as an encroachment on the sovereign rights of the Canton. In the Grisons, the communes have

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always been very powerful (indeed they were long sovereigns), so that we are not surprised to hear that in that region the glaciers are held to belong to the owners of the land they cover—in other words, to the communes. There is, however, a curious exception in the case of the Scaletta glacier (above Davos), which belongs to private individuals. Now there are quite a number of 'Alps' or mountain pastures in Switzerland which are held as private property. Why should not a multi-millionaire, seeking for novel methods of getting rid of his wealth, purchase glaciers, and in fact ultimately 'make a corner' in them? This prospect opens out vistas of amazing and most amusing possibilities.

No account, however summary and brief, of the snowy region of the Alps would be complete without some mention of two phenomena that occur there. One is the existence of tracts, sometimes of considerable extent, and especially in the early summer, of *Red Snow*. This is found on snow slopes at the head of glaciers rather than on the ice of the glacier itself. It was long thought to be due to a minute insect, but it is now certain that it is caused by an equally minute plant, the *Chlamydococcus nivalis*, which is pink in a state of germination, becomes deep crimson later on, and ends in black dust or mould. This red snow is a very surprising sight, though not a very common one.

Now a few words as to the other phenomenon—*Avalanches* (the word means that which descends to a valley), or 'Lauinen' (spelt also 'Lawinen'), the Italian name being 'valanga,' and that of the Engadine Ladin dialect, 'lavina.' It appears in mediæval Latin under several forms—'labinæ' (used in a charter of Henry VI. of England, 1422-1461, as regards the Hospice of the Great St. Bernard), of 'lowinæ' (in a document of 1302, relating to the dangers encountered by the parishioners of Morschach, above Brunnen on the Lake of Lucerne, on their way to their parish church in Schwyz) and 'lavanchiæ' (in two documents of 1475 as regards the perils which would be avoided if the tunnel beneath the Col de la Traversette, at the N. foot of Monte Viso, were really to be pierced). Strictly

speaking, the term 'avalanche' applies only to falls of snow or ice, but it is also often used in case of falls of rock or of earth. A vivid representation of a snow avalanche is given in a wood-cut in Stumpf's book of 1548, probably the earliest known picture of an avalanche.

The real true avalanche ('Grundlauine') is composed of half-frozen masses of snow, that have fallen on the mountain slopes during winter, and descend with enormous force when the thaw comes in spring, carrying all before them—trees, stones, animals, men, etc. It is a frightful thing to witness (even though from a safe distance) the descent of such an avalanche, and to hear the crackling and see the bending of the mighty pines (often planted or preserved as a breakwater), sometimes bodily uprooted, sometimes springing back after the falling mass has passed over them—it is only later that the hoarse roar reaches the ear. Avalanches of this kind usually follow fixed channels and are known by special names, *e.g.* the 'Steglau' and the 'Schüssellau' in the Grindelwald valley; but sometimes they quit their ordinary tracks, and then the damage is greater (huts being carried off though built in what were thought to be secure positions), as is also the horrified surprise of the eye-witnesses. Another kind are the 'Staublauinen' or 'avalanches de poussière.' These are formed of dry, powdery snow, and are less dangerous than the others; however, if a man is caught by one, he may easily be swept off his legs and so lost, though it may simply flow over his devoted body. Such occur largely in winter, though also in early autumn after a first snow-fall. It is a marvellous sight to see the whole face of the Wetterhorn covered by a fall of this kind, as with a veil of lace, slowly and noiselessly dropping downwards. A rare variety of this kind is the 'Hail avalanche,' which was well seen during the great storm of August 3, 1906, when the great N.W. wall of the Eiger was draped in hissing hail and rushing water. 'Glacier' or 'ice' avalanches are not very common. Such are the falls from the Giessen and Guggi glaciers, admired by tourists from the Wengern Alp, or at the foot of the Lower Grindelwald glacier. In 1636 and 1819 there was a great fall from the Bies

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glacier in the Zermatt valley, while in 1782 and 1895 similar falls took place on the Altels, above the Gemmi path.

And now our readers can put to themselves the question addressed by the Lord to Job (xxxviii. verse 22, R.V.): 'Hast thou entered into the treasures of the snow?' bearing ever in mind that 'entering' is not the same as 'knowing.'



THE MONT HERBETET (EASTERN GRAIANS) FROM THE DZASSET GLACIER

CHAPTER IV

ALPINE FLOWERS

BY GEORGE YELD

ALPINE flowers may be roughly divided into two classes—the larger ones which are found in the pastures and woods, and the smaller which grow for the most part higher up and make beautiful rocks and crevices, and even the rugged face of cliffs and precipices up to altitudes of well over 10,000 ft.

Let me speak of the larger flowers first. It is, of course, impossible to give a list of them, and I shall ask my readers to accompany me to pastures and slopes where some of the most striking of them may be seen in masses. Indeed, for the most part, these larger flowers come not in single spies but in battalions, and in any given spot a particular flower is often dominant. I once crossed the Great St. Bernard in a late season, when there was snow all about the hospice, and when we descended on the Italian side, the higher meadows had not been touched by the cattle. No exhibition of hardy flowers could possibly compete with the glories of the first great stretch or basin of pasture which arrested my steps. Tennyson, in one of his early poems, sings :

‘ The gold-eyed Kingcups fine ;
The frail bluebell peereth over
Rare broidry of the purple clover ’ ;

but here the blossoms of the Globe flower (*Trollius europæus*), in absolute perfection of a gold without alloy, flamed in the sunshine by the thousand : the dainty white cups of *Ranunculus*

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platanifolius gave here and there a flash of white ; and the less stately but even more beautiful blue masses of Alpine Forget-me-nots added perhaps the most lovely of all hues to the taller masses of white and gold. Many another bloom—flower-masses of Veronicas, for example—was to be found among them, but these three dominated the meadow—an Alpine triad never to be forgotten.

I have seen in the Italian Val Ferret roads—I will not say acres—of *Gentiana purpurea*, a little sombre, perhaps, but as they shimmered in the sunlight the flowers had a sumptuous richness of colouring not easily to be surpassed. Lower down was the Martagon lily in plenty, less vivid in colour, but still effective. The *Veratrum*, with its tall column of black or green blossoms and broad green leaves, is another of the larger flowers which is very effective. I have often found it near to the purple Gentian. I remember a spot—I think on the Torrent Alp above Leukerbad—where it was very plentiful. It grew amongst the last survivors of a pine forest and below a zone of the purple Gentian. For a short distance the two plants were to be found mixed together. The great yellow Gentian (*Gentiana lutea*) also claimed its share of the ground.

Perhaps the most perfect of all the Alpine flowers is the Alpine Columbine (*Aquilegia alpina*) ; I remember coming across it in fair numbers in a pasture that sloped to the Buthier torrent in the Valpelline. Some of the plants had been trodden down by the cattle, but enough were left to enable one to judge of this Columbine's supreme beauty. The large blue and white flowers are delicately poised on fairly tall stems and are graceful in the extreme. Perhaps the best flowers of it I ever saw were to be found—it is thirty years ago—not so far from the Riffelberg Hotel. They grew in a spot not very easy of access. When placed on the dinner-table with other choice flowers from the same neighbourhood they awakened a chorus of admiration from the ladies.

Rarely, too, though in several places in the Eastern Graians, I have seen *Ranunculus pyrenaeus* cover the meadow with

blossoms white and shapely as a breadth of snowdrops in spring, but not so closely packed together. This *Ranunculus* does not droop but holds its cup upright.

It is not difficult to conjure up the sight of a great sloping meadow covered with myriads of the fragrant Poet's *Narcissus* above a great lake whose waters sparkle in the sunshine. Nor is it hard to conceive the splendour of the green terrace high above the great trough of the Val Tournanche, with the presence of the dark Cervin always felt, if not seen, when countless Alpine anemones, whether white or sulphur-yellow, have opened wide their shapely cups under the persuasion of the sun. Sometimes you may have a musical accompaniment to the study of such beautiful gardens of nature in the mellow notes of distant cattle bells, or the rising and falling melody of the merry mountain brook.

The common foxglove is strikingly ornamental, with its tall spires of purple and white, in many English lanes and woodlands. Shorten the stems and make the flowers bright yellow, and you have the effect produced by the yellow foxglove in the Alps. The best flowers I have chanced upon were on the road from Andermatt to Göschenen, just below the Devil's Bridge, and on the way from the Col du Bonhomme to Bourg St. Maurice in the Tarentaise.

Biscutella laevigata is a plant for which I must own I have a rather exaggerated liking. It grows largely in the Cogne meadows and in the rough ground by the side of the torrent from the Valnontey. Its masses of yellow blossom remind me of a rock *Alyssum* with long stems.

Large yellow flowers of *Arnica montana* in a mass are most effective. My readers will recollect Tennyson's 'Field of charlock in the sudden sun.' Deepen the yellow and give the field a sharp slope and you will have some inkling of a mass of *arnica* on the rough green above the Märjensee; though to make the picture exact you must add an undergrowth of forget-me-nots and other little blossoms. Indeed the larger flowers are generally set in a mosaic of tiny blooms.

One often finds Orchises in the meadows, one or two of

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which are sweet-scented. Perhaps the sweetest is the narrow-leaved Nigritella (*Nigritella angustifolia*), with its strong Vanilla fragrance. I have seen its dark rose-coloured blossoms in large numbers on the hillside above the left bank of the Orco, close to Ceresole Reale.

In moist places Butterworts are effective with their shining, oily, pale yellow-green leaves and blue or white flowers. The bogbean enjoys a watery habitat. Its white, rather woolly, flowers, slightly flushed with purple, are very fragrant. The bird's-eye primrose (*Primula farinosa*) loves a moist soil, and in a mass is quite an effective flower, though the individual blossoms are small. I have seen it in May by the side of the Mont Cenis Railway, quite high up on the Italian side, in such numbers as to almost colour the spot where it grew; though I dare say I should not have noticed it if I had not been specially looking for it.

St. Bruno's lily, *Anthericum (Paradisia) liliastrum*, has a fine white bloom with yellow anthers, but this is a flower which I do not so much connect with masses of blossom as with purity of colour. One plant in full flower, later than its fellows, I remember well, for I found it just before we took to the rocks above the woods near La Vachey in the Italian Val Ferret. Perhaps I remember it the better because near by it in our descent in the afternoon we had to climb through a little waterfall which, in the morning, had been hard frozen.

Late in the Alpine season the pale purple Autumn Crocus, as it is often called, *Colchicum autumnale*, clothes the meadows with myriads of flowers. Above Villeneuve in the Aosta valley, under the shade of huge chestnuts and in orchards but lately shorn by the scythe, it is very numerous. Perhaps it is most welcome to the eyes on the way home from pass or peak. Last year it gave one quite a homely feeling to find it fairly high up the Lötschenthal, after we had spent a long day on the snow and ice of the grim mountain wall which bounds that narrow valley on its south side.

Sometimes the Alpine traveller is pleasantly surprised by sweet scents when no flowers are visible. I remember lunching

beside a torrent in the Val di Forzo, a tributary of the Val d'Orco, when, as I leant back against the green bank above the little stream by the side of which we were resting, a very sweet scent came floating on the air. I immediately began to search for the source of the fragrance and found it in some well-developed clumps of the mountain Cyclamen (*Cyclamen europaeum*). This plant in its favourite habitat, when in large numbers and in full flower, is one of the most charming of all.

The flowering shrubs of the Alps are many and attractive. Perhaps first we should put the Daphnes, many of which exhale an exquisite fragrance. The best known is the Garland Flower (*Daphne Cneorum*), whose deep-pink blossoms inherit a full measure of sweet scent. *Azalea procumbens*, which, as its name suggests, clings to the ground, is a notable plant.

Cytisi of several kinds produce a great effect. 'Emerging,' as Mr. Hinchliff (*Alpine Journal*, v. p. 106) says, 'from the pleasant shade upon the open Creux de Champ, you fancy you see golden curtains hanging from ridges of brown rock, and festooned among the deep green branches of the pine forest. What a combination of colour! Scramble up through beds of oak-fern and groves of that splendid *Spiraea* which waves its huge white crests before the breeze. Look up presently, and you will find what the golden curtain is made of. It is a magnificent Laburnum, the *Cytisus alpinus*, whose roots are buried between the rocks above, while a thousand tails of yellow blossom hang down in clusters before your delighted eyes.'

The Alpine rhododendron, commonly called the Alpine rose, once gave me one of the most effective sights in the flower-world that I can recall. I came upon it in a late season—acres of *Rhododendron ferrugineum*, in a forest where the trees grew at some distance apart. The brightness of the colour—a rich red, the extent of the flower show, the setting of pines and the background of stately ramparts of rock with an occasional waterfall, made the scene unique; and the memory of it is proportionately vivid. *Rhododendron chamaecistus*, a native of the Eastern Alps, is a small but beautiful shrub with paler and

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more delicate blooms than *Rhododendron ferrugineum*. The Alpine Clematis, with its comparatively large blue blossoms, is a very ornamental climber.

The wild roses of the Alps, if they do not spread themselves abroad with the careless profusion which characterises their sisters of English hedgerows, have blossoms quite as bright, and in many cases a fragrance quite as delightful. I recall on one occasion, on my way from Cogne to Gimilian, the village high above the right bank of the Grand' Eyvia, in the early morning, noticing an unusually sweet scent in the air. A diligent search discovered the source of it in some bushes of a pure white rose such as I do not remember to have seen elsewhere.

Let us now speak of the smaller and more delicate flowers. The feature of the Alpine flora which strikes most strongly those who see true Alpine flowers for the first time is the brilliancy of the colouring. As to the effect of height upon flowers I quote the following from the Alpine Club edition of the General Introduction to Mr. Ball's *Alpine Guide* (p. cxvi): 'If we examine individuals of the same species growing at different heights we find that with increasing altitude there is generally a deepening of the tints of the flowers; for instance, the light blue of the forget-me-not becomes deeper, the yellow of hawk-weeds tends towards orange. It is a well-known fact that the colours or shades of Alpine flowers change when the plants are cultivated in gardens. In any family of flowering-plants in which flowers having different tints occur, it is often found that the yellow flowers are the simplest and most lowly organised, and that the blue flowers are the most highly organised. Further, it is known that, speaking broadly, in a family the successive advance of the complication of the flowers corresponds more or less to the colours in the following order:—yellow, white, pink, red, crimson, violet, blue. In Alpine flowers there is a larger percentage of the colours corresponding genetically to high organisation than there is in the lowland. For instance, the yellow of the lowland primrose and cowslip is supplemented by the violet tints of several species in the

Alps. There is a pink-flowered Alpine saxifrage in addition to the ordinary yellow and white-flowered species. An orange-red Alpine hawkweed contrasts with the paler yellow lowland species. There are many flowers which are violet, or brilliant sapphire, or deep ultramarine (*Campanula*, *Phyteuma*, *Saussurea*); the gentians vary in their different species from yellow, whitish green, to deep yet vivid blue; the speedwells (*Veronica*) from pink to sapphire with a central spot, white or yellow, fringed with orange or vermilion. Frequently, too, the Alpine flowers have stronger scents, and pour out more honey than their lowland allies.'

Just as it is not always the most beautiful woman that wins the most hearts, so it is not always the most beautiful flower that charms us most. *Ranunculus glacialis* has a modest blossom of white flushed with pink, rising above firm leaves of dark—I might almost say—sombre green; but of all Alpine flowers which venture to make a home on the high rocks of the Alps this is the one which has perhaps most delighted me. 'Not as the feeblest and yet the favourite,' but as so often present to smile upon a difficult rock climb or to greet the mountaineer's eyes on the first rocks after an exciting passage of step-cutting in steep ice. I have found it at 12,400 ft. on the Pic de la Lune or Pointe de Ceresole in the mountains of Cogne, in a massive tuft, with many blossoms and a wealth of vigorous leaves. I once found strong tufts of it with many blooms rich in colouring on the last rocks of La Vierge in the midst of the great Géant Glacier, growing as freely as a house-leek on the crumbling wall of an old English garden, regardless of its wintry surroundings. I have met with it on the summit of the Tour de Créton on the great ridge which bounds the Val Tournanche on the west. I have come upon a perfect nursery of it at the top of the great cliffs between the much-crevassed Dzasset Glacier and the great Plan de la Tribulation on the west of the Valnontey above Cogne. I have seen it near the bleak head of La Noire; but by far the most beautiful blossoms of it that I ever beheld were growing on the exposed north ridge of the shapely Becca di Monciair at the head of the Val Savaranche.

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We found them in an exposed position, two tiny blossoms on a sparse fringe of firm green leaves, much smaller in size than is usual, with less pink in their colouring, but with a purer gold in their centres than I ever knew them show elsewhere. It surely seemed as though their endurance of the keen frost and the biting wind had ennobled them, as so many of the purest of the high-growing Alpine plants are ennobled: as though beauty born of passionate fortitude had passed into their faces.

The fairy forget-me-not (*Eritrichium nanum*) is a sight to dream of, not to tell—the most perfect of blues with the most shapely of tiny cups. Blue is perhaps of all colours the most difficult to define, but no blue that I have ever seen—whether that of the turquoise or the sapphire, or of the Sicilian sea on a perfect day—can excel the blue of this little flower. On a grassy ridge in Italy, at a height of 9000 ft., I have seen it in quantity. I have seen it in Switzerland at about the same height flourishing, but not so plentiful; but to behold it in perfection you must climb higher. Then in some sunlit little hollow on a rock-wall facing south at 10,000 ft. you shall look upon it in perfection. The blossoms cover the hairy leaves from which the plant takes its name. They are as innocent, as taking, as childlike as our own 'Little speedwell's darling blue,' though richer in colour. One of the biggest tufts I ever found was on the south side of one of the Gemelli della Roccia Viva in the Eastern Graian Alps, at a height of probably close upon 11,000 ft. Its beauty appealed not only to me but to my guides. A cornice of red rock protected it, though I doubt not the moisture from above somehow trickled to its roots.

Androsace glacialis is another of the dwellers on bleak heights and precipitous walls. There are other flowers—not Cleopatras, but Charmians—that find a place in our story. Such an one is *Thlaspi rotundifolium*, with shining green leaves and pale purple or mauve flowers, unpretentious but welcome as an old friend.

The red Rockfoil (*Saxifraga oppositifolia*) I have seen in better condition in the English Lake district than in Switzer-

land, for it is generally out of flower in August. But to any one who finds it in perfection it is a very beautiful flower. On the southern side of the St. Gotthard tunnel, high up, it was to be seen in splendid tufts in mid-April, 1906. Red is always an effective colour, and the red of this flower is set off by the brown of the anthers and the finely cut foliage. Of the many other saxifrages I will mention only the great pyramidal-flowering *Saxifraga Cotyledon*. Of this I have seen wonderful examples in rocky hollows and ravines in the Eastern Graians. Tall, graceful, starred with a profusion of blossoms, they rose from strong, firm, silver-edged tufts of green, and waved their twinkling splendours over our heads in homes too high to be reached without a ladder.

Of Gentians much might be said, but no one can properly appreciate them who has not seen twenty tufts of *Gentiana verna* or *bavarica* in full bloom in full sunshine. The blue is full and deep, and, like that of the fairy forget-me-not, very difficult to describe. I may say without exaggeration that I have seen patches of it so large and of such vivid colour that the little basin where they grew shone blue in the sun.

Gentiana acaulis, too, must not be passed over. It is a beautiful and effective plant, and luckily well known in English gardens under the name of Gentianella. But in talking of blues I must not forget the pale blue bells of *Campanula anisia*. This flower should be seen in a mass, as I have found it in the Graians. To the west of the ice-fall of the great Trajo glacier under the Grivoletta it may be admired in profusion. Hundreds of pale blue bells over delicate green foliage give quite a striking effect for so small a flower.

The *Campanula excisa* is a pretty flower. It is one of the special flowers of the Berisal district, where it may be found almost everywhere. It first struck me as an effective little plant high up in the Baltscheiderthal, where flowers were by no means numerous.

Androsace (late *Aretia*) *Vitaliana* is a charming Alpine flower. The finest display of it I have seen was in a narrow, dry torrent bed above the Cerrù lake at the head of the Val

d'Orco. Hundreds of bright blossoms of a soft yellow fell like golden fringes over the rough stones.

Alpine pinks have many beauties. *Dianthus glacialis* is delightful. Our own Cheddar pink, *Dianthus caesius*, is very pretty, but my favourite is *Dianthus neglectus*. A specially fine form of this variety is found in the Val Piantonetto in the South-eastern Graians. It is of a soft rose colour, and the flower is, comparatively speaking, large.

There are some plants which may be found comparatively low down, and also comparatively high up. Of these is *Chrysanthemum alpinum*, always welcome. I have found it even at 10,000 ft. growing quite freely, but this was in Italy. The last time I saw it high up was on the Beichgrat in the Bernese Oberland, after bad weather, and there the frost had shrivelled it. Where it grows freely its masses of bloom captivate the eye at once.

Let me take you to an Alpine slope at from 8000 to 9000 ft. in a late season, say in the first week of August. There through the melting snow breaks the Soldanella of a fairy-like grace; there the Alpine Wallflower shows a blossom much brighter in colour though shorter by a good deal in the stem than it ever puts forth in an English garden; there anemones, including the light purple Halleri, poise themselves in the sun. Forget-me-nots sparkle 'Azure of Heaven's own tinct'; primulas shine softly in crevices of rock: saxifrages cover the stones with trails of blossom, or spring in little sheets of bloom from masses of finely cut leaves.

There are pansies too, possibly with a mark of heavy footsteps near them, for there are villages in the Italian Alps where the pansy is worn on August 15th by many villagers, and the Alpine slope we are talking of is the florist which supplies them. The most beautiful pansies I ever found were growing in the Arpisson basin above the Arpisson chalets near Cogne, famous for their view of the stately Grivola. In the first meadow of the alp, above the gorge through which the torrent falls in noisy haste, the myriads of rivulets that hurried through the grass were that morning fringed with icicles, and such

sparkling jewellery as the night's frost had hung upon them : higher up the snow lay lightly, and edged the tiny blossoms of pansies and forget-me-nots. No splendid tear such as fell from Tennyson's passion-flower appeals to the flower-lover half as much as these half-frozen drops on the fragrant cup of the *Viola*. There were too, on that slope I spoke of, gentians of the richest blue; *Anemone vernalis*, with its setting of rich, glossy brown hairs; and there also *Silene acaulis* covered rosettes of shining leaves with multitudinous blooms of pleasing red.

Let me here quote one of the best accounts of a host of Alpine flowers ever written, by one who loved and knew them passing well.¹

'On such Alps as those of the Faulhorn there are acres of blue and white crocuses in full blossom under the snow; and as the fierce midsummer sun daily diminishes the size of the snow patches, thousands of their blossoms emerge and gradually lift up with thankfulness their oppressed heads. If you raise a few handfuls of rather deeper snow, you will find hundreds more of them lying almost flat upon the ground, and anxiously waiting for their share of the great warmth-giver. A few feet only from the retiring snow, where the soil is still soaked with its melting, the purple bells and drooping fringe of the *Soldanella alpina* spring as by magic out of the ground which is yet brown from its burial during six months of wintry sleep. Lovely indeed is this waking from slumber, this melting of death into life. On one of those bright first days of July we ascended the Männlichen, a grassy mountain about 7700 ft. high, which forms the angle between the two Lütschine rivers, and thus commands the valley of Lauterbrunnen on one side and that of Grindelwald on the other. The collection of flowers grew rapidly as we moved upwards. Pink rhododendrons and purple columbines were supplemented by yellow anemones and blue gentians; then came the white crests of *Anemone narcissiflora*, beautiful to behold; then crocuses, blue and white, and beds of the lilac-belled soldanella on the margin of the snow. In open places upon the top was an abundance of the delicate *Lloydia serotina* and *Myosotis alpestris*, which far excels all other forms of forget-me-not.'

¹ Mr. T. W. Hinchliff, (*ubi supra*, pp. 108-9).

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There are some flowers which win a place in the mountaineer's regard, not so much for their intrinsic beauty, as because they clothe with their greenery or soften with the brightness of their blossoms the rough moraine or the wet rocks whence water oozes forth, or the rugged side of a mountain brook. The Alpine Toad Flax (*Linaria alpina*), with its purple and orange flowers, gives the climber many a pleasant surprise as he picks his way over rough ground. *Saxifraga aizoides* sometimes hides the birthplace of tiny streams with masses of its green leaves and flowers that vary much in colour; and even such an unobtrusive plant as the creeping willow plays no inconsiderable part in softening the rough spaces between moraine and mountain pasture. In such spots, too, the mountain Avens (*Dryas octopetala*), with its white and gold, is often delightful.

Mountain Cresses, with their little white flowers, can make quite a brave show when they have established themselves on the walls of an abysmal chasm absolutely impossible of ascent or descent for the cleverest of climbers. On the Plattenhörner, to the east of the Gemmi, in the gaunt ravines which seam the wall that faces the Torrent Alp, I marked them with admiration. You may look with awe down one of these chasms and snatch a fearful glimpse of green meadow many hundred feet below; whilst on the chasm's walls here and there these cresses hang tenaciously.

There are many everlasting flowers to be found in the Alps, the most famous of which is, of course, the Edelweiss (*Gnaphalium leontopodium*). Though there are many slopes easy of access where it grows freely, yet every year many visitors to the Alps who are not accustomed to climbing of any sort lose their lives in attempting to gather this much-desired flower in places where the ground is difficult. It is, by the way, quite easy of cultivation in English gardens. There are, too, many plants which are gathered for the making of liqueurs. I once met on the slopes below the Herbetet at Cogne a man laden with a great sack of plants which he had been collecting for this purpose. The best known and most popular is, I

believe, *Artemisia mutellina*, 'le vrai g  n  py,' a plant also used medicinally by the peasants.

We have given in this chapter but a brief account of the most prominent and beautiful of Alpine flowers. Whole clans of charming plants have been omitted, for example, the *Arenarias* and *Potentillas*, the *Sedums* and *Sempervivums*; the most famous of the last-mentioned family is the Cobweb Houseleek (*Sempervivum arachnoideum*), described by Mr. William Robinson as 'one of the most singular of Alpine plants, with tiny rosettes of fleshy leaves covered at the top with a thick white down, which intertwines itself all over the leaves like a spider's web.' Ferns, which are among the most beautiful of all Nature's creations, have been intentionally omitted.

CHAPTER V

SOME BEASTS AND BIRDS OF THE ALPS

BY HOWARD V. KNOX

NO account of the Alps can be complete without some notice, however brief, of the principal Beasts and Birds which are still to be found in that region, a subject that is very interesting in many ways. In these pages we can touch only on a few representatives of each class, such, on the one hand, as the Bear, the Bouquetin, the Chamois, the Marmot, the White Hare, the Fox, etc. ; and, on the other, the Lämmergeier, the Golden Eagle, the Alpine Chough, the Ptarmigan and the Wall-creeper. In all these cases we limit ourselves to the species that occur in the Alps (whether French, Swiss, Italian, or Austrian), the Fauna of which is, of course, by no means co-extensive with that of Switzerland, as is sometimes stated.

A.—SOME BEASTS OF THE ALPS

Not so very long ago, historically speaking, the **Brown Bear** (*Ursus arctos*) was to be found throughout the whole of Europe, including Britain. But at the present day its range in that part of the world is restricted to the vast forests in the North and to the great mountain systems that extend from the Caucasus to the Pyrenees. In the Western and Eastern Alps it is now very rare indeed. In the Central or Swiss Alps its last remaining stronghold is in the dense forests of pine and scrub to the east of Zernetz in the Lower Engadine. In that neighbourhood, up to the year 1884, its existence was demonstrated, though hardly favoured, by the fact that one or more specimens were secured



THE WETTERHORN, EIGER, MÖNCH, JUNGFRAU, ETC. (BERNESE OBERLAND) FROM THE
BLÜMLISALPHORN

almost yearly as trophies of the chase. Since that date, however, the slaughter of a bear in the Swiss Alps is ever more rarely chronicled.

To human beings the brown bear is apt to be more alarming than dangerous. Except when wounded, or on guard over its cubs, or very hard pressed by hunger, it, as a rule, ostentatiously effaces itself on the approach of man. But Bruin, though subsisting chiefly on a vegetarian diet, when this fails, will often leave his hidden retreat in order to make a nocturnal raid on sheep or cattle. He even, on occasion, breaks into the hut wherein the goats are shut up, and drags forth a victim.

In dealing with the subject of bears in the Alps it is impossible to avoid all mention of the bear-pit at Berne. With hardly a break since 1513 this has been a regular institution of the town, in keeping with the adoption of a bear for the arms of both town and Canton. As far back as 1224 the official seal of the town (founded in 1191) displayed a bear, while the traditional derivation of the name Berne from 'Bären' (bears), though formerly scouted by many learned men, now receives a certain measure of support from recent historical writers. In view of the special association of bears with the town and Canton of Berne, it is interesting to note that the last bear that was killed, in the wild state, within the limits of the Canton, was shot in 1819 in the neighbourhood of Riederen, a hamlet in the Diemtigen glen of the Simmenthal.

One of the very last well-authenticated cases of the occurrence of bears in the Canton of Berne was that of a formidable animal which, for several weeks in the autumn of 1792, haunted the neighbourhood of the Little Scheidegg, near Grindelwald. It decimated the flocks that grazed the pastures on either slope of that pass, but, though hunts were continually organised for the purpose of ridding the country-side of this terror, Bruin for a long time contrived to evade the hunters. But at last three men of Grindelwald came upon him at no great height above their valley, and each of their bullets found a billet in his body. Nevertheless the bear made off, bullets and all, and for the space of more than an hour clambered up the wooded slopes of the

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Männlichen. Here he had the misfortune to encounter yet a fourth Grindelwalder, a young fellow named Hans Kaufmann. This youth levelled his musket at the monster, and pulled the trigger. But, owing presumably to the snowy weather, the musket refused to go off, while the bear, on the other hand, resolutely came on. Rearing himself on his hind legs he sought to enfold the hunter in a close embrace. Kaufmann, however, stood his ground bravely, and repelled these advances with the butt-end of his weapon, which he used with such vigour that, while the musket flew into pieces, the bear sank dead at his feet. For his valiant conduct Kaufmann received from the cantonal authorities, in addition to the usual sum awarded for the slaughter of a bear, 'a special recompense of a new *louis d'or*.' The musket, too, was replaced by the free gift of a new weapon, taken from the public armoury.

The protection extended by the kings of Italy to the **Bouquetin** or Steinbock (*Capra ibex*) has so far saved it from the fate which seems to threaten the brown bear. In 1856-7 Victor Emmanuel II. acquired exclusive hunting rights in the district of Cogne (S. of the valley of Aosta), and placed the existing herd of bouquetins under the strictest supervision. That there were then any of these animals left at all was in all probability due to the action taken by the Piedmontese Government, at the instance of the naturalist Zumstein, in 1821, when severe laws were passed prohibiting the pursuit of the few specimens of this species to be found within its territory. Under the watchful care of the king's keepers the original small herd quickly increased in numbers to about three hundred, and continues to flourish to the present day in the Cogne district, though outside that region the animal, except as a straggler, is no longer to be met with, for the colonies transported to the Grisons and the Tyrol have not long survived. In fact, these bouquetins are now the sole representatives of their species, for though allied species of ibex occur elsewhere in Europe, the form found in the Alps is peculiar to that region.

The dwindling in numbers of the bouquetin, a process which, in one district, was so fortunately arrested in the very nick of time, as just described, had already been going on during a

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lengthy period. As early as the beginning of the sixteenth century this diminution had made itself felt, and by the end of the same century the animal had become extremely rare, even in those parts (such as the Grisons) wherein it was formerly most abundant. Though now extirpated from Swiss soil, it has left a memento of its former presence, as it is borne on the arms of Interlaken and of Unterseen, as well as on those of the Grey League of the Grisons and of the city of Coire.

A further cause (perhaps also partly an effect) of the rarity of the bouquetin, even in mediæval times, was the belief in the therapeutic efficacy of different parts of its body, a belief which, of course, greatly enhanced the value of the carcase. There was also a superstition to the effect that a goblet fashioned from its horns would enable the user to detect the presence of any poison in the liquid contents. All sorts of wild tales, indeed, were current in those days concerning the bouquetin and its ways. Even so genuine a naturalist as the celebrated Conrad Gesner, writing in the middle of the sixteenth century, reproduces in all good faith the legend that the bouquetin, when it feels that the sands of its life are running low, betakes itself to some pinnacle of lofty loneliness, and there, hooking a horn to the summit, proceeds madly to twirl round, till at last the horn is worn through, and the animal is precipitated into the depths. It is curious, by the way, that a somewhat similar tale is told (by the same author) of the chamois. The chamois, he says, when hard pressed by the hunter, and driven into some position whence further escape is impossible, obligingly hangs itself up on a rock by its hooked horns (presumably thus acknowledging that the game is up) and so suffers itself to be taken.

While the bouquetin belongs to the family of the goat, the *Chamois* (*Rupicapra tragus*) has the distinction of being, in Western Europe, the sole representative of the antelope tribe. Less powerful-looking, but shapelier, than the bouquetin, the chamois, by its fearless and graceful carriage, proclaims its sure possession of the hills. Marvellous as are the stories often told as to the climbing powers of the chamois, it is, in truth, almost impossible to exaggerate this animal's mastery of the rocks.

The true habitat of the chamois in the summer months is the region between the snow-limit and the limit of trees. The old bucks, however, commonly lead a solitary and somewhat sedentary life on the upper fringe of the pine forests, until they sally forth in the early winter to seek, and often to battle for, a mate. The does and young males herd together in companies of from five to thirty individuals, and live at a much greater altitude. While feeding, they generally depend for safety on the vigilance of a sentinel—invariably an old female—which, on the approach of an enemy, gives the signal of alarm by a loud sibilant whistle.

On the arrival of winter the chamois are driven down to a level lower than that of their summer haunts, though even at this season they hardly ever come much below the tree-limit. They usually take up their night-quarters huddled together under some spreading pine, whence at daybreak they ascend for a time to the inhospitable-looking slopes above, where the ground is too steep to hold more than a thin coating of snow. Then, scratching away the snow with their forefeet, they eat whatever moss or dried herbage they find beneath.

In winter the old bucks develop a mane-like fringe of dark bristly hairs along the back. This is the so-called 'Gemsbart'—beard in the proper sense the animal does not possess—so highly prized by the chamois-hunter, who carefully picks out the longest hairs, and puts them together in a tuft, to be worn in his hat, as a token of his prowess, on festal occasions.

Almost everywhere in the Western and Central Alps—less frequently in the Eastern Alps—the wanderer in the region just below the snow-line will hear the loud, shrill whistle, which is the alarm signal of the **Marmot** (*Arctomys marmota*). This rodent is, in fact, more often heard than seen, its dark-brown colouring rendering it, when at rest, very difficult to distinguish among the sparse herbage and rocks of its lofty home. But any one who makes good use of his eyes is sure to get an occasional sight of this animal, as it scuttles off to its burrow with an agility hardly to be expected from its rather quaint and squat little figure.

The marmot lives in colonies of varying numbers, but, in

summer at least, each burrow is inhabited by a single family. Sometimes, but not always, the same burrow is used as a summer and as a winter home. The change from summer to winter quarters, wherever it takes place, involves a descent to a lower level. The animals prepare for winter by carrying into their sleeping-room a quantity of dry grass, with which the floor is entirely covered, so as to provide a comfortable couch for the two or three families that usually club together at this season. About the middle of October the burrow is closed up, from within, by a closely packed wad, composed chiefly of hay, which, however, is placed, not at the entrance of the burrow, but at a distance of one or two feet therefrom. In the snug home thus carefully prepared the whole party, numbering from five to fifteen individuals, sleep away the long winter months, unless they are dug out by some ruthless hunter. In this state of hibernation the vital activities are almost entirely suspended.

The **White Hare** (*Lepus variabilis*) and the **Stoat** (*Foetorius erminea*), though widely dissociated in the scheme of scientific classification, and related often as hunter and hunted, are alike in the colour-change they undergo from brown in summer to white in winter, when the stoat is known as the *ermine*. Both the white hare and the stoat range in the Alps to a height of 10,000 ft. It should be observed that the white hare is a totally distinct species from the common hare (*Lepus timidus*), though the two species often mingle in the upper and lower limits of their respective regions, while hybrids between them are not uncommon in a natural state.

A near relative of the stoat, viz. the **Stone-Marten** (*Martes foina*), and another familiar carnivore, the **Common Fox** (*Canis vulpes*), are sometimes found in summer at a great elevation in the Alps. The mountain-dwelling fox has usually a grey appearance in winter owing to the hairs of its head and back being at that season tipped with white. In this condition of fur it is known as the 'Silver Fox,' and the skin has then a considerable commercial value.

The little **Snow-mouse** (*Arvicola nivalis*) must not be omitted

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from our list of animals found in the Alps. It was first discovered in 1841 by Martins on the Faulhorn. Of all European mammals it is the one which lives constantly at the greatest elevation. It is abundant in many parts of the Alps at an altitude of about 7000 ft., and has been observed on the Finsteraarhorn at a height of considerably over 12,000 ft. above the sea-level. How it contrives to support life through the long winter is something of a puzzle. It does not hibernate like the marmot, but leads an active existence within the tunnels which it drives between the deep-lying snow and the surface of the earth.

B.—SOME BIRDS OF THE ALPS

The **Lämmergeier** (*Gyphaetus barbatus*), the finest of all the European birds of prey, was once common throughout the entire chain of the Alps. But so persecuted has it been that it is doubtful whether any individuals whatsoever linger in some fastness of the mountains, though it is possible that the Italian Alps still harbour some specimens. The partly vulturine appearance of the bird is due to the form of the beak, for the head and neck are fully clothed with feathers. It owes the name of *Bearded Vulture* (as also its scientific name) to the short black tuft of bristly feathers under the chin. Well-authenticated instances are on record of the Lämmergeier having attacked children, while popular tradition credits it with a propensity for carrying off babies to its eyrie, when the chance offers. It does not seek carrion for choice, but prefers to kill its own game. If this be of large size (for example, a chamois) the bird's method of attack is to buffet the victim with its wings, till the harassed quarry is driven over a precipice. It is especially partial to bones as an article of diet, and, when they are too large to be swallowed whole, it is said to drop them from a height, so as to break them into smaller pieces. This habit of the bird was known to the ancients. According to Pliny (*Nat. Hist.*, x. 3), it was a Lämmergeier which caused the death of Æschylus by dropping a tortoise from on high on to

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the poet's bald head, which it regarded as an attractive object on which to break the obdurate shell.

The following account is given by Prof. C. Zeller (in his *Alpentiere im Wechsel der Zeit*, Leipzig, 1892, p. 40-1) of the last Lämmergeier known to have met its death in the Swiss Alps: 'Its home was the Canton of the Vallais, where for the space of a quarter of a century it dwelt among the jagged peaks of the Lötschenthal. The inhabitants, whose cats disappeared with a surprising regularity, knew the bird intimately. It was a female of advanced age, as was plain from its almost white under-parts, and was familiarly known as 's'alt Wyb' (the Old Woman). To this bird the well-known eyrie on the Hohgleifen (10,762 ft.) once belonged. Her mate was shot in 1862. From that time onwards the eyrie was unoccupied. Whether it was that no fresh suitor offered himself, or that the ageing matron no longer cared to take upon herself the responsibilities of a family, the 'Old Woman' led a lonely widowed life for a quarter of a century. The venerable dame of the Lötschenthal Alps came at last to a lamentable end. She was found dead, above Visp, in February, 1887, beside the corpse of a poisoned fox. Her skin subsequently found an abode in the Natural History Museum at Lausanne.'

Though now much rarer in the Alps than formerly, the **Golden Eagle** (*Aquila chrysaëtus*) is still occasionally to be seen there, singly or in the company of its mate, wheeling high in wide circles, in search of prey. Hares, ptarmigan, foxes, marmots, young chamois, yearly yield the eagle a heavy tribute, but smaller animals are also brought under contribution. As a nesting-place the Golden Eagle usually chooses a ledge about half-way up some great mountain cliff, while the eyrie is almost invariably protected against molestation from above by being placed under an overhanging bit of rock. The nest is a bulky platform of fair-sized sticks, with a slight covering of smaller boughs and of roots.

The least observant of travellers in the Alps can hardly fail to have his attention attracted by the **Alpine Chough** (*Pyrrhocorax alpinus*), a bird which belongs pre-eminently to the upper regions

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of rock and snow. Of the size and general appearance of a jackdaw, it is easily distinguished from that bird by its slighter build, its slender curved yellow bill, and its coral-red legs, while the cry, a shrill, loud chirrup, which it constantly emits, also makes it easy to identify at a considerable distance. The Alpine Chough usually lives in large bands, and the evolutions of a flock form a beautiful sight. In summer this bird is often found at enormous heights, and it has even been observed on the summit of Monte Rosa (15,217 ft.). It breeds in colonies, at a height of from 5000 to 9000 ft., on precipitous cliffs, the nest being built in a fissure of the rock. It never leaves the neighbourhood of the mountains, though in a severe winter it may descend to the plains at their base.

Another characteristic bird of the higher regions is the **Ptarmigan** (*Lagopus mutus*), or 'Schneehuhn,' which in hot summer weather is sometimes found high up on the *névé*. Even in winter—at which season the whiteness of the plumage which it then assumes matches that of the snow-mantle—it prefers to remain above the tree-limit, though it occasionally descends to the upper fringe of the pine forests.

Of the smaller birds that are to be found in the snow region perhaps the most representative, and certainly the most attractive, is the **Wall-creeper** (*Tichodroma muraria*), which has been aptly called the 'humming-bird of the Alps.' The brilliant scarlet bands and the pure white spots on the wings are all the more effective in contrast with the quiet grey and black of its general colouring; and are displayed to the best advantage as the bird, its wings half-spread, creeps with mouse-like movements over the face of the bare and precipitous rocks that form its favourite haunt.

CHAPTER VI

THE ALPINE FOLK

HITHERTO we have considered the Alps in themselves, as a great mountain chain, rising in peaks, or sinking at intervals to form passes, in parts covered with eternal snow, yet in parts affording rich pastures to cattle in summer; a chain here rugged, there smiling, and yet, save in the case of the cattle driven up in summer to the high pastures, a chain inhabited but by a few living creatures, though producing many glorious flowers born only to waste their sweetness on the desert air.

We must now go on to speak of the presence of man in the Alps, and of the influences which mountains and men have exercised on each other.

We have not the slightest idea when man first penetrated into the recesses of the Alps, nor what manner of men they were who first had the courage to explore these mysterious valleys and push up the banks of rushing mountain torrents which flowed down from snows that seemed to touch the sky. A few skeletons scattered here and there, some pieces of jewellery of a singularly artistic nature, possibly a few rude monuments, scarcely now to be distinguished from the rocks carved by Nature herself—that is all we know of the first inhabitants of the Alps. If they had chroniclers who set forth their varying fortunes, or bards who sang the deeds of their doughty heroes, neither chronicles nor epics have been preserved for future generations. Anthropologists may weave elaborate and somewhat cobwebby theories as to the origin of this primitive folk, based on the length of the heads of their skeletons,

or the size of the limbs belonging thereto, but they can tell us nothing about them which is of human interest—their speech, their manners, their customs, their political or social institutions. In short, the aboriginal inhabitants of the Alps are to us merely a set of specimens shown in museums, ticketed and dust-covered, and devoid of attraction save to a few learned pundits. The Alps remained for centuries a dim, mysterious region, which indeed gave rise to the great rivers that fertilised Central Europe, and which was made the scene of many a legendary tale or adventure, or the home of gods and demigods. But of its actual inhabitants the civilised world, then limited, in that part of Europe, to Italy, knew nothing definite till their attention was most painfully awakened by the thunder-clap of the news that Hannibal, the Carthaginian, had succeeded in forcing his way across them (B.C. 218), and was descending from these icy heights in order to ravage the fair plains of Italy. But of his great feat of courage we have no contemporary accounts, nor, unluckily for us, was he accompanied by a swarm of 'special correspondents' who would have unveiled the Alps to us as they have recently unveiled Lhasa. We only gather echoes of this passage of the Alps, echoes that resound in writers of a later age, and that have been wafted so long from one quarter to the other that the impression left on us is of a roaring and rushing of the air that confuses instead of informing our minds.

Still later, when the Romans actually came into contact with the inhabitants of the Alps, they did not pay much attention to them, considering them as 'barbarians' unworthy to be noticed by men of superior culture, and their country as a horrible desert to be traversed as quickly as possible in order that the smiling plains on the other slope of this inhospitable chain might be reached, and annexed with the slightest loss of time to the wide dominions of these 'superior persons.' The main object of Cæsar, Pompey, and their lieutenants was not to tarry in the Alps in order to study the language and customs of their inhabitants, but to utilise some of them as guides, porters, and so on, while keeping a tight hand on the rest in

order to secure the safety of the main route across the Alps. What would we not give now for the report of some inquirer who, like the well-known Teuton of our own days, had caused himself to be shut up in a cage in a forest with a phonograph, in order to reproduce with the utmost nicety the language of the natives, whether men or monkeys! Yet the conquest of the Alps by the Romans had its importance, in that it first brought the inhabitants of the region face to face with a civilised race. Political relations were established between them, and the political history of the Alps (of which more in the next chapter) had begun.

The knowledge of the Alpine folk possessed by the outer world has, roughly speaking, kept pace with the closer political relations established with them. The original inhabitants gave way before or were absorbed by successive streams of wanderers, following each other like the waves of the ocean. Some of these tribes pressed ahead and were, in time, lost among the inhabitants of the plains on the S. slope of the great chain. Others, less energetic, played the part of loiterers, were left behind by their more active comrades, and so settled down in the higher valleys on one side or other of the divide. Others, finding their farther progress barred by the advance-guard, or being repelled with indignation as troublesome intruders, once more, reluctantly, took up their staves and retraced their steps till, somewhere, in some valley, they found a resting-place for their weary feet. These new inhabitants came from all sides, repeatedly crossed each other's tracks, and wandered in every direction, finally reproducing in the Alps, from the point of race and language, phenomena similar to those which the geologist tells us appeared there long before and describes under the names of inverted and folded strata. As the centuries rolled by, the stronger tribes absorbed those that, for any reason, were more weakly, and sometimes even (to the confusion of future historians and philologists) assumed the names and arms, as it were, of the absorbed peoples. Tribal characteristics were gradually smoothed out and reduced to a few leading types. Yet even in historic days a counter-

current to this process of ironing out made itself felt. Emigrations, though on a smaller scale, took place from time to time, for instance that of the German-speaking Vallaisans in the thirteenth century to the S., the N. and the E., so that Vallaisan traces, whether in the spoken dialect or in the local names, are to this day found in the valleys S. of Monte Rosa, and in the Val Formazza, and in the glens N. of the great ice-clad range of the Bernese Oberland, and far away in the Grisons, near the sources of the Rhine. Add to these belated emigrations the shiftings due to political causes, and we shall better understand how it comes to pass that, while in the Alps there are 'natural frontiers' from the purely physical point of view, there are none so far as regards the nationality (as shown by the language) of their inhabitants when considered as articulate beings and not as political pawns or units. The theory of natural frontiers has, of course, an enormous historical importance, and is often based on the language spoken by the persons whom the speaker 'desires to annex.' Not a single one of the existing Alpine powers can boast of ruling *all* the folk whose mother-tongue is identical with, or similar to, its own. These variations from a cast-iron theory are, of course, due to historical causes; in other words, are the result of the processes sketched out above, which are still, to a smaller or a greater extent, going on under our own eyes. The Alps, in short, far from having hemmed the 'Wandering of the Nations' at any date from the fifth century onwards, have rather served as a great highway, with many branching byways, which have led the wanderers up and down, right and left, in zigzags and by straight lines, till the labyrinth seems to lack any clue whatsoever. Yet there is one, that namely afforded by history, though it only enables us to unravel the tangled skein with much labour and trouble, and then with merely a high degree of probability and not with absolute certainty. At first sight, however, it seems as if the exceptions to a few general principles are very insignificant, though, as is usually the case, the more closely we study a subject the more intricate does it appear to be.

In the next chapter the historical events which have produced this shot-silk result will be set forth in outline, for many volumes would be required to describe them in detail, so that the patience of the reader would give way perhaps even before that of the author and the publisher. Here let us try to get some general idea of the existing state of things from several points of view, political, linguistic, and religious, and then we can better appreciate the rather numerous exceptions which sometimes, though not invariably, serve to impress a rule on the mind of an industrious student.

1. As regards **political allegiance** the Alpine folk are partly Republicans (not all of the same hue), partly imperialists, and partly royalists. The judicious reader may draw **varying** conclusions from this seeming impartiality in the high sphere of politics. Some may point to the connection between the free air of the Alps and that of a republican form of government. Others may plead that one of these two Alpine Republics is of very modern date, to which reproach a stickler for accuracy may retort that the same is even truer of the two royal governments, while a third critic may point out that, after all, the single Empire is not in much better case. Yet allowing that the present state of things is on the whole very modern, the reactionary as well as the revolutionist may still hope that soon there will be a change in one or other direction. In point of antiquity the Swiss Republic leads the way, having been founded in 1291, though it was later when the Cantons, which extend in whole or in part over the great divide of the Alps, entered the Confederation as full members—both Tessin and the Grisons in 1803 and the Vallais in 1815, their wide territories being separated by the narrow gorge of Uri, one of the three original Cantons. Over five centuries younger than the Swiss Confederation are the Empire of Austria (the Emperor Francis II. assumed the title of Emperor of Austria in 1804, though he did not resign that of Holy Roman Emperor till 1806) and the **kingdom** of Bavaria (1806). Still more modern are the

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kingdom of Italy (1861, while Venetia was won in 1866) and the French Republic (1870).

Probably the Alpine state which rules the most extensive portion of the Alps is Italy, which practically holds their entire S. slope, with the rather important exceptions of Tessin (Swiss) and the Trentino (Austrian). On the other slope France claims nearly the whole W. or N. slope of the Western Alps, save a bit of the Vallais; the Swiss Confederation the whole of the Central Alps, with a bit (the Lower Vallais) of the Western Alps, and Austria practically the whole of the Eastern Alps. Bavaria's share takes in a bit of the Eastern Alps (N. of the Vorarlberg and the Tyrol), which a German writer plaintively describes as 'only a portion of the N. slope of a part of the low limestone range,' and as 'rather an approach to the Alps than a fragment of the Alps themselves.' Yet this small fragment is the only region of the Alps, high or low, that actually belongs to the German Fatherland, a fact which arouses different sentiments in different men.

Such are the main lines on which the Alps are at present partitioned among the great Alpine powers. France (and naturally Bavaria) alone now owns not a yard on the opposite side of the divide save possibly a bit of the top of Mont Blanc. The three other states, however, all extend their claws across the physical frontier.

Let us take the case of *Italy* first. On looking at a detailed map of the Maritime Alps the eye is at once struck by the fact that a considerable region S. of the main chain (which here runs E. and W.) is now included in Italian territory. This region became Italian for two entirely different reasons which apply to its two divisions. The portion which, roughly speaking, lies W. of the Col de Tenda and the Roja valley, though it is E. of the main divide, takes in the heads of several Alpine glens—those of Castiglione and Mollières are affluents of the Tinée, itself an affluent of the Var, while those of Boréon, Finestre, and Gordolasca are tributaries of the Vésubie, which joins the Var a little below its meeting with the Tinée. It is believed, though the matter is wrapped in some obscurity, that all these glens (which formed part of the county of Nice)

were in 1860 left by France to Italy as a graceful concession to the hunter-king, Victor Emmanuel II., who had all the hunting rights on the N. side of the divide, and desired also to have those on the S. slope. The history of the other portion is quite different. The Roja valley, descending from the Col de Tenda to the sea at Ventimiglia, is E. of the main divide of the Alps that runs S. from the Mont Clapier to the Turbie spur. But Italy now possesses only the lower (Ventimiglia) and the upper (Tenda) thirds of the glen. The middle bit (Fontan, Saorge, and Breil, all on the E. slope of the main divide of the Alps) belongs to France, which is thus able to block the valley, and to prevent (if it wishes) the construction of the railway from the S. foot of the Col de Tenda right down the Roja valley to Ventimiglia. The truth is that this middle third of the valley formed part of the county of Nice, having about 1250 separated itself from the rest of the valley and done homage to the Count of Provence, from whom the House of Savoy got the county of Nice in 1388, making it over to France in 1860. But the upper and lower thirds remained in the hands of the original lords of the whole valley, the Counts of Ventimiglia (in the case of the upper third of a cadet branch, the Counts of Tenda), and from them passed in two bits (the lower, after belonging to the Grimaldi family and Genoa, in 1815, and the upper bit in 1575) to the House of Savoy. Thus what is certainly an anomaly of practical importance is shown to have its roots in the far past. In 1860 France did get practically all the county of Nice, but no part of the county of Ventimiglia or of Tenda. Two other small fragments of territory on the 'wrong' (*i.e.* N.) slope of the Alps also belong to Italy—the wild Val di Lei, whose stream runs down to the Swiss Avers valley, and so to the Hinter Rhine, and the fertile hay-glen of Livigno, through which the Spöl descends to join the Inn in the Lower Engadine. These two districts came to Italy in 1859, as the Val di Lei was in the county of Chiavenna, and Livigno in that of Bormio, both, with the Valtelline, then passing, as included in 'Lombardy,' to the House of Savoy, which in 1861 obtained the crown of united Italy.

Surprising as it may seem, the possessions of the *Swiss Confederation* on the S. slope of the Alps are more extensive than those of Italy on the other slope. In the thirteenth century the small German-speaking villages of Simplon (Simpeln) and Gondo (Gunz or Ruden) were colonised from the Vallais, and, with it, became Swiss in 1815. More important is the Italian-speaking Canton of Tessin, formed in 1803 out of various fifteenth and sixteenth century conquests of the Swiss: the portions best-known to foreigners are the Val Leventina, down which roars the St. Gotthard train after passing through the great tunnel, and the frequented resorts of Lugano and Locarno. The Swiss Confederation also holds (since the formation of the Canton of the Grisons in 1803) three Italian-speaking valleys, those of Mesocco (with its tributary of Calanca) that joins the Val Leventina at Bellinzona, and, farther E., the better-known glens of Bregaglia and Poschiavo. In 1480 Mesocco entered the Ober Bund (one of the Three Rætian Leagues) through its lords, the Trivulzio family of Milan (who in 1549 sold all their rights to the valley dwellers), while the other glens respectively in 1367 and 1408, through their lord, the Bishop of Coire, became part of the League of God's House. Yet another Grisons valley, the upper bit of that of Münster, close to Livigno, and watered by the Ram, an affluent of the upper Adige, lies on the S. slope of the Alps: it, too, came to the Grisons (1762) as heir of the Bishop of Coire, and as its inhabitants are mostly Ladin-speaking, we see that the Swiss territories on the S. slope of the Alps are occupied by three populations speaking three distinct tongues.

Finally, *Austria* holds since 1815 the whole tract S. of the Brenner Pass, which practically consists of the territories of the secularised (1803) bishoprics of Brixen (German-speaking save the Ladin-speaking folk of the Gröden valley) and of Trent (Italian-speaking, with the exception of a few German islets). Austria, too, holds the considerable Slavonic-speaking region in and near the Isonzo valley, W. of the main chain, as well as a more extensive territory of the same kind E. of the divide.

Such is the present political condition of the Alpine portions

of the great Alpine states, which, it should be noticed, are far from being exclusively Alpine (as were smaller states in the Middle Ages, like the Dauphiné, the Vallais, the Grisons, the Tyrol, the bishopric of Trent, etc.), for all possess wide plains as well as Alpine districts.

It is only possible to estimate roughly the present number of the inhabitants of the Alpine districts. They probably do not exceed 9,000,000 in all. About 3,000,000 are German-speaking, while the French-speaking folk may be put at about 2,300,000, being slightly exceeded by those who claim Italian as their mother-tongue. The Slavonic-speaking dwellers of the Alps number less than a million. The remainder speak some dialect of a quaint old tongue, either Romonsch (the Vorder Rhine valley) or Ladin (Engadine, Gröden valley, and Friuli).

2. These remarks as to the numbers of the inhabitants of the Alps naturally lead us on to consider the different **mother-tongues** spoken at present by the Alpine folk. Speaking generally, we may say that while Alpine Italy is almost wholly Italian-speaking, Alpine France speaks only French, and Alpine Bavaria only German. But Alpine Switzerland speaks German, French, and Italian, as well as the singular Romonsch and Ladin dialects, while Alpine Austria, though mainly German-speaking, contains also a very fair number of Italian-speaking and Slavonic-speaking folk. However, limiting ourselves to the N. slope of the Alps, we may say roughly that the Western Alps are mainly French-speaking, while the Central Alps revel in four or five tongues, as noted above, though the Eastern Alps can only boast of German, Italian, and Slavonic. Of course, in the Alps, dialects of these tongues are mostly spoken, the purer forms being confined to the plains.

Yet, just as we found that politically Italy, the Swiss Confederation, and Austria owned districts on the S. slope of the Alpine chain, so numerous linguistic islets are to be discovered in the midst of populations speaking other tongues.

In order, as it were, to vary a little the dull uniformity of the prevalence of Italian only in *Italy*, there are within the political

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frontiers of that land two regions wherein French is still the language of the natives, though the Government officials are doing all they can to suppress it. The former of these two regions takes in several glens W. and S.W. of Turin. The Val Pellice and the Val Germanasca have simply kept the French tongue which the Vaudois or Waldensians brought with them when they migrated thither from Dauphiné. Other valleys, such as the upper Val Varaita (just S. of the Monte Viso), the Chisone valley (above Pinerolo), and the Dora Riparia valley (Césanne, Oulx, Bardonnèche, and Exilles, all near the Mont Cenis railway), still contain a French-speaking population, because for many ages they formed part, from the political point of view, of Dauphiné, and were only gained in 1713 (as we shall see in the next chapter) by the House of Savoy. Even more interesting is the case of the valley of Aosta, with its tributary glens. Enclosed by the lofty ranges of Mont Blanc, the Mont Vélan, the Matterhorn, and the Grand Paradis, and reached as easily from the French-speaking part of the Vallais over the Great St. Bernard Pass, as from the equally French-speaking district of the Tarentaise over the Little St. Bernard, one would really be astonished if it had not kept its French dialect. For, as E. A. Freeman was never tired of urging, this valley is simply a piece of Burgundy on the other side of the Alps. Since 575 A.D., when it was snatched from the Lombards by the Franks, Aosta has, with scarcely a break, always belonged to masters who ruled on the other slope of the Alps. Since the House of Savoy (which has held it since about 1025) in 1860 gave up the cradle of its dynasty to France, Aosta is the last fragment that remains to it of its former great Burgundian dominions on both sides of Alps. Thus all the French-speaking districts in Italy are simply relics of former Dauphiné or Savoy supremacy on the 'wrong' slope of the Alps.

More singularly there exist also a few German-speaking villages within the boundaries of political Italy. N. of Domo d'Ossola, at the Italian foot of the Simplon Pass, there runs up a long, narrow valley, like a wedge thrust in between the Vallais (W.) and Tessin (E.)—both Swiss. This glen is watered by the



MONTE ROSA FROM THE FALLERHORN

Toce or Tosa river. Its highest portion bears the special name of Val Formazza or Pommat valley, and there is settled (and also at the neighbouring villages of Agaro and Salecchio) a German-speaking colony, which came from the Vallais in the thirteenth century. It still preserves its dialect, and is a curious survival. In turn, before 1253 it sent an offshoot E. over the mountain ridges to Bosco (Gurin), at the head of one of the side glens of the Val Maggia, above Locarno: this odd little settlement now numbers 266 souls, of whom 260 still speak Vallaisan German. We have mentioned above the similar colonies at the villages of Simplon and Gondo, a little above Domo, on the Simplon road, but these have always remained Swiss, Bosco becoming Swiss in 1512, while the Val Formazza passed to the House of Savoy in 1743. Below Domo, in the Tosa valley, is Ornavasso (Urnäsch), originally a Vallaisan colony, from Naters, opposite Brieg, but now quite Italianised.

More important numerically are another set of Vallaisan German-speaking colonies, which occupy the heads of some of the Italian valleys S. and E. of the great snowy mass of Monte Rosa. Such are the Val de Lys (Gressoney), the Val Sesia (Alagna), and the Val Anzasca (Macugnaga), together with the isolated villages of Rima (head of the Val Sermenza) and of Rimella (head of the Val Mastallone). The old Gothic fourteenth-century church of the parish of Macugnaga is a striking relic of this indefatigable colonisation from the Vallais.

Much farther to the E., on a high mountain shelf, is the German-speaking settlement, N. of Vicenza, and N.W. of Bassano, known as the Sette Comuni (the seven Communes or parishes), viz. Asiago, Rotzo, Roana, Gallio, Foza, Enego, and San Giacomo di Lusiana. Of the 25,000 inhabitants comparatively few (save at Rotzo and at Roana) still speak German, which is rapidly disappearing, or has already disappeared, in the other villages. It is a much-disputed point whether this population represents the remains of an Ostrogothic or an Alamannian occupation of the district, or whether the original inhabitants were Swabians planted here to guard the Alpine passes; they name their tongue 'Cimbro.' In any case they have no con-

nection with the Vallais. In the Tredici Comuni (thirteen Communes) N. of Verona, the former prevalence of German is now said to have completely vanished, as it has in the city of Trent itself, the lower portion of which was exclusively German as late as 1483; so says Felix Faber (Schmid), a Dominican friar from Ulm, in his account of his pilgrimage to the Holy Land, while adding that a few years previously the Germans in Trent were not many in number.

The dialect spoken in Friuli is a distant relative of the Ladin tongue spoken in the Engadine and the Gröden valley, of which we shall have something to say presently, and so we have another interesting historical anomaly. In this district, too, there are several scattered German-speaking villages, viz. those of Sappada or Bladen (1322 souls), Sauris or die Zahre (760 souls), and of Timau or Tischelwang (1220 souls), the highest village on the S. slope of the Plöcken Pass. In all three places an antiquated Tyrolese-German (in Timau strongly influenced by the Friulan dialect, while Sauris has the least impure German) is spoken, and as all three are expressly mentioned as existing in the last quarter of the thirteenth century, it would seem that they were then (if not earlier) occupied by colonies from the Tyrol.

It is scarcely necessary in the case of the *Swiss Confederation* to do more than state the fact that its Italian-speaking population inhabits the canton of Tessin (Swiss in 1803), together with the Grisons valleys of Bregaglia and Poschiavo (Swiss in 1803). The dividing line in the Alpine region between the French-speaking (W.) and the German-speaking (E.) folk runs S. from Fribourg (two-thirds French-speaking) between Charmey (W.) and Jaun (E.) in the Jogne valley, then between Château d'Oex (W.) and Saanen or Gessenay (E.) in the upper Sarine or Saane valley, and, after passing between the Ormonts valley (W.) and Gsteig or Châtelet in the uppermost branch of the Saane valley, (E.), touches the summit of the Oldenhorn. The line of demarcation then runs E. to near the Wildstrubel, where it again bends S. to cut across the Vallais a little E. of Sierre or Siders (that town has a very slight majority of French-speaking folk), above Sion or Sitten, and then to follow the ridge separating the

Anniviers or Zinal valley (W.) from that of Turtmann (E.), and so along the crests of the Weisshorn (leaving the Zermatt valley on the E.) and the Dent Blanche to the Italian frontier, which is reached near the Dent d'Hérens and the Matterhorn.

More interesting in Switzerland is the question of the population which speaks either the Romonsch or the Ladin dialects. This now numbers 38,651 souls, of which 36,472 reside in the Canton of the Grisons. Much nonsense has been written about this ancient tongue, which is simply a Romance dialect that has not kept pace with its elder sisters, French, Italian, etc. It is not improbable that it represents the tongue of emigrants from Lombardy pushed up into the mountains by stronger tribes behind, and finally passing through the Engadine so as to reach the Rhine valley, W. of Coire. The dialect, specially named *Romonsch*, is spoken in the Vorder Rhine valley (or Bündner Oberland), which runs from the Oberalp Pass past Disentis and Ilanz to Coire: it is itself subdivided into two patois, which prevail respectively in the two valleys mentioned as well as in the lower reach of the Hinter Rhine valley. The tongue of the region above Thusis, which comprises the valleys leading to the Albula and Julier Passes respectively, is a transitional one. Once across either pass, in the Engadine, or upper valley of the Inn, we find that most of that well-known district uses the *Ladin* dialect, which is by far the most living form of this ancient tongue. An exception is formed by the Samnaun glen, in the Lower Engadine, a valley with 357 inhabitants, which, no doubt owing to its easier communications with the Tyrol than with Switzerland, now speaks Tyrolese-German, though a hundred years ago it was Ladin-speaking, and the place-names are still Ladin. It is from the Lower Engadine that the Ladin language has penetrated to the upper or Swiss portion of the Münster valley, which sends its waters to the upper Adige.

In this tolerably extensive Romance-speaking region of Eastern Switzerland there are, however, a number of German-speaking islets, which are all (save the Samnaun valley, mentioned above) in the *Romonsch* district. The smallest and the most isolated is the parish of Obersaxen (521 out of 652 souls), to the S.W.

of Ilanz, and above the S. bank of the Vorder Rhine. A similar colony, which existed from the fourteenth to the sixteenth centuries, in the Calfeisen or upper Tamina glen, above Pfäfers, has left traces of its former existence in many Teutonic place-names. The most extensive is that of the Rheinwald, or upper valley of the Hinter Rhine (861 out of 899 souls), which in turn has sent colonies N. over mountain ridges to the Vals (713 out of 736 souls) and Safien (558 out of 585 souls) glens, both of which are tributaries of the Vorder Rhine. It seems most probable that all these inhabitants formed part of one of the great thirteenth-century emigrations from the Vallais, and the dialect to-day (as the present writer can testify from personal experience) certainly resembles that now spoken in the Upper Vallais. (Davos, too, was originally a thirteenth-century German-speaking colony from the Vallais).

In fact, all the glens opening S. of the main Vorder Rhine valley offer a most remarkable and intricate enlacement in point of language as well as in point of religion. Going from W. to E. we find that the Medels valley (through which the Middle Rhine flows to join the Vorder Rhine, under Disentis) is Romonsch-speaking and Romanist, as is the next inhabited valley to the E. (for the Somvix glen is uninhabited save in summer), Vrin, the S.W. and principal branch of the Lugnetz valley which descends to the Vorder Rhine, at Ilanz. But the S.E. branch, or Vals glen, of the Lugnetz valley is German-speaking and Romanist, while the next glen to the E., that of Safien, is also German-speaking, but in religion Protestant. Yet in the next valley to the E., that of Domleschg, or the *lower* Hinter Rhine valley, through which passes the Albula railway from Reichenau to Thusis, the confusion is complete, both as to language and as to religion, so that one can never be quite certain which tongue is spoken or which faith is professed in any given village. The *middle* reach of the Hinter Rhine valley, or the valley of Schams, is Romonsch-speaking and Protestant, but the *upper* Hinter Rhine valley, or the Rheinwald, is German-speaking and Protestant. Later on (Chapter XIII., Section 13), when describing the Albula Group, we shall have occasion to

speak again about one of the side valleys of the Hinter Rhine, that of Avers. The lower half of this valley, or Val Ferrera (which is divided from the upper half by a series of fine, rose-coloured, marble gorges, now pierced by a good carriage road), has 162 inhabitants, out of whom 153 speak Romansch, and 161 are Protestants, while in former days this bit belonged to that of the Three Rætian Leagues which was named the Grey League. On the other hand, the upper half of the valley, or the Avers proper, has 204 inhabitants, out of whom 194 speak Vallaisan German, and 198 are Protestants, while in the old times it belonged to the League of God's House. There can be scarcely another Alpine glen which exhibits such strange variations in its political history and language.

Let us now go on to *Austria*, where, too, we find both Ladin and German islets in the midst of a population of another tongue. The Ladin portions (15,828 souls) lie in the old bishopric of Brixen, between German-speaking and Italian-speaking districts, and include some of the glens well known to wanderers among the Tyrolese Dolomites—those of Gröden (upper part), Gader, Fassa (the upper Avisio glen), and Ampezzo (Cortina), though the two last named are more Italianised than the other couple, while Buchenstein, or the upper Cordevole valley, above Caprile, is, it is said, still less Ladin. Historical students will regret the probable early extinction (save in the Engadine and in the Gröden and Gader valleys) of this quaint Ladin dialect, which deserves to be preserved most carefully as a *monument historique*. It is now generally believed that the dialect spoken in Friuli is a kind of Ladin, and not a rough Italian patois.

More curious are, perhaps, the fairly numerous German-speaking islets in the parts of the old bishopric of Trent, or the Italian-speaking S. Tyrol. To the N. of Trent there are a few scattered villages in the Val di Non (Nonsberg), which leads up along the Noce towards the Tonale Pass, and so to the upper Oglio valley or Val Camonica: these German-speaking hamlets, *Unsere liebe Frau im Walde* or Senale (309 out of 310 souls), *St. Felix* or San Felice (317 out of 337 souls), Laurein or

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Lauregno (513 out of 516 souls), and Proveis or Proves (497 out of 516 souls), are situated amidst an Italian-speaking folk (though not far from the German-speaking populations to the N.) and on the most northerly slopes of the Val di Non.

E. of Trent and N.E. of Pergine (on the Val Sugana railway) lies the Fersen or Fersina valley (Val dei Mocheni), in which there are a number of German-speaking villages in the midst of an Italian-speaking population—Gereut or Frassilongo, Eichleit or Roveda, St. Franziskus or San Francesco, St. Felix or San Felice, and Palù or Palai—of 1819 inhabitants 1537 speak German, Palù boasting indeed of 423 German-speaking dwellers out of a population of 432. The two hamlets bearing saints' names had their origin in the twelfth century as a colony of miners, but the others are said to be of Lombard or Frankish descent. To the S. of the Fersen valley, and so to the S.E. of Trent, is the village of Lusarn or Luserna, with 675 German-speaking inhabitants out of a total of 699. It is said to be a thirteenth century colony established here by the prince-bishop of Trent, like its neighbour San Sebastiano, but the latter, a village in the parish of Folgareit or Folgaria, seems now officially to have only two German-speaking inhabitants, though some unofficial works put the number at 300.

Almost all the Slavonic-speaking inhabitants in the Alps proper are to be found in the Austrian province of Carniola (a few only in Carinthia). Here there were, till recently, several German-speaking islands, for instance, Deutschruth and Zarz, both dating back to the thirteenth century, but it is said that now they have been all but completely Slavonicised, though the older inhabitants of some villages E. of Zarz still speak German. The chief German-speaking settlement in Carniola, Gottschee, lies outside the limits of the Alps.

3. We have now studied the Alpine folk so far as regards their political situation and the mother-tongues which they speak. Something must now be said as to their religion.

It need hardly be said that before the Reformation of the

sixteenth century they were all Romanists, with one small exception, the Vaudois or Waldensians, who lay claim to have been 'Reformers before the Reformation.' These, however, were not very numerous, and were confined to some Alpine glens in the upper Durance valley, in Dauphiné, on the French side of the Alps, as well as to certain others, on the E. or Piedmontese slope, such as the Val Pellice and the Val Germanasca, both S.W. of Turin.

After the Reformation the Waldensians were still the only Protestants in the French and Italian Alps, and, having practically become Calvinists of the Geneva type, are true 'Protestants.' On the French slope of the Alps there were, till recently, small congregations in the Freissinières glen of the upper Durance valley, and in the Arvieux branch of the Guil glen, a tributary of the upper Durance valley: this region was known as the 'Pays de Neff,' from Felix Neff, a young Genevese Protestant pastor who devoted part of his short life (1798-1829) to working (1823-9) among its inhabitants. On the Italian slope the number of the Waldensians does not now exceed 13,000. They are confined to the Val Pellice and its side glens of Angrogna and Rora, and to the part of the Val Germanasca *above* Perrero, where it splits into the glens of Prali, of Rodoretto, and of Massel. But the rest of the French Alps, as also those of Austria and Bavaria, is inhabited by a Romanist population. As regards Switzerland, most of that part of its territory (whatever language its dwellers speak) which lies on the S. slope of the Alps is occupied by an exclusively Romanist population, so the villages of Simpeln and Gondo, practically the whole Canton of Tessin, and the Grisons valleys of Mesocco and Calanca, while in Poschiavo the Protestants number about one-fifth of the population, though in the Münster valley they form nearly half (681 to 1505). The Val Bregaglia, however, is five-sixths Protestant. When we look at the N. side of the Swiss Alps, we notice at once that of the three great valleys which are carved out at the base of that slope, two are all but exclusively Romanist, those of the upper Rhone or the Vallais, and of the upper Vorder Rhine or the

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Bündner Oberland (the lower valley is three-fourths Romanist), while in the third, the upper Inn valley or Engadine, only rather more than one-third are of that faith, Tarasp (long a Habsburg possession) and the Samnaun glen being the only predominantly Romanist spots. We noticed above the curious interlacing of religion and language as to the main valley of the Hinter Rhine. The Romanists number three-fourths of the population in the valleys above Thusis, leading to the Albula and the Julier Passes, while they are, of course, predominant in 'Primitive Switzerland,' or the Cantons of Uri, Schwyz, Unterwalden, and Lucerne, though holding only one-fourth of the folk of Glarus. On the other hand, the Protestants are vastly superior in numbers in the valleys N. of the great snowy chain of the Bernese Oberland, and claim the allegiance of three-fourths of the population in the valleys round Davos. In the older books of travel one used to read of the superiority in many points of the Protestant mountain Cantons over those which have clung to the older faith. But, if we put aside the Canton of Tessin, which is really a bit of Italy that belongs to Switzerland for purely historical reasons, a careful study will show that so far as regards natural advantages of soil, etc., the Romanist part of the region is far less favoured than is the Protestant portion. Compare, for instance, the swampy and barren Vallais, and the deep-cut upper Bündner Oberland, or the narrow trench of Uri, with the smiling valleys of the Bernese Oberland. The difference in prosperity is far from being wholly due to differences of religion.

This seems to be the proper place wherein to insert a few remarks as to the very important part played by the Church not merely in the conversion, but in the civilising, of the Alpine lands. This was not merely because some of the principal bishops (such as Embrun, Tarentaise, Sion, Coire, Lausanne, Trent, Brixen, Salzburg) in these regions possessed secular as well as spiritual powers. That union of jurisdictions in the hands of one and the same lord often did not produce good results, save on special occasions. We refer rather to the work of the great monasteries, whose serfs, as in England,

occupied a privileged position by comparison with those of temporal lords, and who were able to secure some continuity in the maintaining of the improvements they had carried out in matters agrarian as well as educational and social. Such are the ancient Benedictine houses of Novalesa (above Susa and on the S. slope of the Mont Cenis), St Michel de la Cluse (between Susa and Turin)—the mother house of Chamonix, the most Alpine of all monasteries—Disentis (founded by a disciple of Columban) in the Vorder Rhine valley, Münster, above the upper Adige valley, St. Gall, Einsiedeln, Engelberg, Pfäfers; or the Austin Canons of St. Maurice, in the Vallais, and of Interlaken, in the Bernese Oberland, or the Cistercians of Abondance, S. of the Lake of Geneva. Nor should we forget the secular canons of Lucerne (the house was Benedictine from its foundation in the eighth century till 1455), or the powerful Tyrolese houses of Marienberg (Benedictine), at the head of the upper valley of the Adige or Vintschgau, and of Wilten (Premonstratensian Canons Regular), close to Innsbruck, and of Innichen (first Benedictine, from the twelfth century secular canons), at the head-waters of the Drave, and formerly an outpost of Christianity towards the heathen Slaves, or the Styrian house of Admont (Benedictine) in the Enns valley. Some of these religious houses have done their appointed work, while others still continue their labours, though in a more limited sphere than of old. But all must rejoice that the Austin Canons still offer shelter to passers-by, whether workmen or travellers for pleasure, on the Great St. Bernard, and the Simplon. Formerly they served also the Little St. Bernard, where, since about 1750, the Hospice is under the control of the military and religious knightly order of SS. Maurice and Lazarus. The Capuchins were in charge of the Hospice on the St. Gotthard during the eighteenth century.

In terminating this sketch of some of the main general characteristics of the Alpine folk let us mention as a curiosity the fact that the highest permanently inhabited village in the Alps, as well as in Switzerland, is Juf (6998 ft.), in the Avers valley (Grisons), not very far from the Maloja Pass. The highest village in Italy is Trepalle (6788 ft.), between Livigno

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and Bormio, near the head of the Valtelline; the highest in the French Alps is L'Écot (6713 ft.), at the very head of the Arc valley or Maurienne, in Savoy, or perhaps that of St. Vêran, W. of Monte Viso, in a side glen of the Guil, a tributary of the upper Durance valley, of which the *highest* houses are at a height of 6726 ft., though the rest of the hamlet is lower; while the highest in Austria or the Tyrol is Ober Gurgl (6322 ft.) in the Oetzthal district, the neighbouring hamlet of Vent or Fend being 6211 ft.



THE POINTE DES ECRINS AND THE PIC COOLIDGE (DAUPHINÉ ALPS)
FROM THE CHARDON GLACIER

CHAPTER VII

THE POLITICAL HISTORY OF THE ALPS

THE political history of the Alps properly takes its start, as we indicated in the preceding chapter, with the establishment of political relations between the Romans and the Alpine folk. But these relations were terribly one-sided, for they consisted in the more or less complete subjugation of the Alpine tribes to the hard yoke of the Romans. If it was not in every case compulsory annexation, it certainly amounted, on the part of the peoples of the Alps, to the abandonment of their former freedom and isolation in favour of the encroaching Romans. Looked at from the point of view of the dwellers among the fastnesses of the Alps, the Roman rule, at any rate in some cases, pressed hardly only from time to time, when an attempt was made to get rid of even a nominal subjection. In the eyes of the Romans, however, such risings were simply the restless strivings of barbarians, who, if suffered to stretch their chain of captivity to its full extent, were yet not allowed to overpass certain strictly defined limits on pain of severe chastisement. The Romans, not unnaturally, entertained a strong objection to running the risk of having their delicate and refined civilisation injured or threatened by the rude onslaughts of these wild men of the hills. Yet the latter had generally undergone very hard experiences, and did not appreciate the part assigned to them of supplying the wants of their conquerors, while they themselves were kept at a respectful distance, if need were, by force of arms. Probably, as in the case of any contact between civilised and uncivilised nations, both sides suffered many disagreeables. But it must always be remembered

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that, most unfortunately, we have only accounts of the conflict written by the conquerors, who, naturally, bring into prominence their own brave deeds rather than those of their dreaded foes. Of course, it must have been very unpleasant for the Romans to have before their eyes the fear of a possible invasion of their fair domains in sunny Italy by the Alpine tribes, speaking a totally different tongue, fascinated by the sight of the good things denied them, and eager to grasp what they could at the point of the spear.

But the Alpine folk were numerous and full of a daring courage, which can only be explained by ignorance of the power of their future conquerors. It was in the time of the Republic that the Gauls in what is now Lombardy and Venetia were overcome. But the conquest of the tribes on the N. slope of the Alps was a very long and wearisome process. Speaking very roughly, these people were reduced to the position of Roman allies, or subjects, in the period that extends from B.C. 25 to B.C. 8 or 6. In the former of the two last-named years the Arch of Triumph at Susa was set up, with the names (still plainly visible) of fourteen conquered Alpine tribes, while at the second date given there was erected at Turbie, above the blue waters of the Mediterranean, a Tower, now in ruins, though the names of the forty-five Alpine tribes thereon inscribed have been luckily preserved to us by Pliny. Oddly enough, however, but six names are common to the two inscriptions. Matters could now be better organised, and a ring of provinces was formed on the N. slope of the Alps to act as a sort of cushion, whereon the attacks of the wilder warriors might be made without any damage save to themselves. The danger to the Romans was thus pushed farther away, behind the lofty chain of the Alps, which, so they hoped, would have formed an impassable barrier. Now, the Romans of the Empire might go safely to sleep, and care not which general assumed the imperial purple.

It is hard to fix the *exact* limits of the Roman dominion in the Alps, though we may safely assert that under Augustus (died A.D. 14) the whole of both slopes of the Alps, Western, Central,

and Eastern, were in the hands of the Emperor, directly or indirectly.

But as the central power grew weaker and weaker so did its hold on the distant provinces across the Alps relax slowly and surely, while, in their turn, some of the later Emperors ruled in the provinces apart from Rome. New hordes of barbarians appeared on the scene. Rome was sacked successively by Visigoths under Alaric (A.D. 410) and by Vandals under Geiseric (455). The division of the Empire in 395 was followed in 476 by its nominal reunion, with Odoacer as imperial viceroy in Italy. But his rule broke down in 493 before the invasion (489) of the Ostrogoths under Theodoric, though barely seventy years later these had to make way for the Lombards (568). Meanwhile, on the other side of the Alps the tribes brought into subjection partly recovered their liberty of action, being no longer controlled by a strong arm stretched over them from Rome, while in part they were pushed on by the ever-advancing masses of hitherto dimly heard-of barbarians. Thus the old provincial system was replaced by the rule of a set of vigorous tribes which pressed into the glens on the N. slope of the Alpine chain, and were ready enough, had fortune favoured them, to imitate the example of their luckier comrades who had actually entered Italy and gained the coveted prize. So we find that while the Burgundians hovered over the western portion of the Alps, the Alamanni held the central bit of the chain, and the Baioarii occupied the eastern third—of course, all these tribes keeping on the N. slope.

All were, however, to give way and bow their necks to the rule of a distant yet increasingly powerful folk, the Franks, who slowly but steadily made their way towards the Alps and so to Italy and Rome. Hardly had Clovis, the founder of the Merwing dynasty, put the final stroke (486) to the last surviving fragment of Roman rule, under Syagrius, in north-western Gaul, than he put the Alamanni to rout (496). This crowning victory (for the conversion of the Franks to orthodox Christianity soon after secured their ultimate supremacy) was followed

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up by his successors, who in 532 overcame the Burgundians, and in 536 obtained from the Alamanni their last stronghold in Rætia, as well as from the Ostrogoths their possessions in Provence. In 575, let us not forget the event, the Franks wrested the valley of Aosta (as well as Susa) from the Lombards, and henceforth this valley, though lying S. of the Alps, followed, with very slight breaks, the fortunes of masters who ruled on the N. slope of the great chain.

But the fresh vigour of the Merwings soon died away, so that they did not themselves pluck the coveted fruit from the trees, simply preparing the way for the mightier Carolingians (751). Pippin, the founder of that dynasty, found enough to occupy his attention in Aquitania and towards the Pyrenees. It was his son, Charles the Great, who during his glorious reign (768-814) not merely carried out his father's schemes, but added to them in a fashion that would probably have startled Pippin. His conquest of the Lombards (774), after forcing his way over the Alps, meant not merely supremacy in Italy, but, what to us here is even more important, the possession of the entire S. slope of the Alps. He already held on the N. slope the W. or Burgundian, as well as the Central or Alamannian heritage. Hence, when in 788 he added the lands of the Baioarii to his own realm, and this meant the annexation of what represents modern Tyrol and Carinthia, Charles thus obtained the one bit of the N. slope of the Alps lacking to him. Once more the whole of the Alpine chain was under the rule of a single monarch, and therefore the historian of the Alps has a special feeling of joy when he recalls the coronation of Charles the Great at Rome on Christmas Day, 800, as the second Augustus, and Emperor of the Romans. Never again was the whole of the great mountain chain of which we are studying the history to be held by one and the same man. But, as we shall see, it was the third member of the great triumvirate that at long intervals have moulded the history of Europe more than any other human beings, even Napoleon himself, who came very near success in his attempt to rival, or surpass, the deeds of his two great predecessors.

The successor of Charles the Great was his son Louis the Pious, but he had hardly assumed the burden of Empire (crowned at Rome in 810) when he began to partition it among his sons (817). It was only, however, after his death (840) that a partition was definitively made by the famous Treaty of Verdun (843), which, roughly speaking, laid the foundations of modern Europe. We need not trouble ourselves here with the share of the youngest brother, Charles the Bald, as it did not touch any part of the Alpine chain; the frontier of his kingdom, which nearly represented the France of later times, was drawn to the W. of the Rhone and the Saône. The second brother, Louis the Germanic, obtained what may be called an elementary form of later Germany, so that his domains took in that part of modern Switzerland which is E. of the Aar, as well as Tyrol, Carinthia, and Carniola. In short, he held the whole of the German-speaking portion of the Alps. The eldest brother, Lothair, took the title of Emperor (together with Italy, thus ruling over the S. slope of the Alps), and also a long strip of territory which stretched from the mouth of the Rhine to that of the Rhone, this great Middle Kingdom being named by the chroniclers the 'regnum Lotharii' (the 'kingdom of Lothair'), or 'Lotharingia.' Here we have no concern with the more northerly half, a bit of which later monopolised the name of Lorraine. Our interest is limited to the southern half, which took in what is now W. Switzerland, Savoy, Dauphiné, and Provence, the whole forming a Romance-speaking region as contrasted with the German-speaking Alpine dominions of Louis the Germanic. On Lothair I.'s death (855) this S. half was given over to his youngest son, Charles, the N. half going to his second son, Lothair II., while Louis, the eldest of the three brothers, became Emperor and ruler of Italy. But on Charles's death (863) that part of his heritage which lay to the E. of the Rhone went to his eldest brother, Louis, and was held together with Italy, while after Lothair II.'s death (869) the N. half went to Louis the Germanic. Henceforward the history of these two halves of Lotharingia, or the Middle Kingdom (which thus existed only from 843 to 855), is wholly distinct. When Lothair I.'s line

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became extinct in 875, on the death of Louis, its domains (with the imperial dignity and Italy) passed to Charles the Bald, who ruled over them as well as over his original share (roughly speaking, later France).

Two events, not far removed in point of time, the deaths of Charles the Bald (877) and that of Charles the Fat (888—he held the German-speaking portion of the Alps, as well as Italy), finally broke up the huge Empire of Charles the Great into four great fragments, of which three only (we exclude the West Frankish kingdom, which did not touch the Alps) concern us in this sketch of the history of the Alps. Germany (or the Eastern Frankish kingdom) henceforward had a separate life of its own, though soon, in its Alpine portions, a crowd of great feudal nobles secured all practical power. Italy passed through the hands of a rapid succession of rulers, till there too many feudal lords each secured to himself a portion of the realm. Finally the S. half of the Middle Kingdom broke up into two portions. In 879 Count Boso of Vienne was chosen king by his fellow-nobles, his rule extending over all what is now modern Savoy (save that bit which lies S. of the Lake of Geneva and N. of the upper Isère valley or the 'Tarentaise'), Dauphiné, and Provence. This kingdom is sometimes called 'Cisjurane Burgundy,' but it took in no part of the Jura, and is more accurately named the 'kingdom of Provence': it lasted only till about 933, when its then ruler, Count Hugh of Arles, king of Italy, made it over to the king of the more northerly half of 'Burgundy.' The last-named kingdom took its origin in 888, after the death of Charles the Fat, the first king being Rudolf, a Burgundian count. This more northerly kingdom (which is generally named 'Transjurane Burgundy') comprised all W. Switzerland, with that part of Savoy between the Lake of Geneva and the upper valley of the Isère and the valley of Aosta (held 880-888 by Boso). Its second king, Rudolf II., it was who got from Count Hugh the kingdom of Provence at the nominal price of the crown of Italy. Thus about 933 the two Burgundian kingdoms were reunited after having been divided since 879. This united kingdom (which included the whole of the N. slope of the

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Western Alps, save the Vallais, but with the addition of the valley of Aosta on the S. slope) lasted till 1032, when, by a treaty made, in 1027, with the last king, Rudolf III. (died 1032), it passed to Conrad II., the Emperor and German king who was crowned in 1033 at Payerne. It is, however, only early in the thirteenth century that this kingdom of Burgundy officially takes the name, by which it is usually known, of the kingdom of Arles. It practically came to an end in 1378, when the Emperor Charles IV. (who had been crowned king of Arles at Arles in 1365) conferred the office of 'Imperial Vicar' within the whole of the kingdom of Arles on the young Dauphin, eldest son of Charles V., king of France. In 1193 the Emperor Henry VI. (who had no real authority over it) conferred on Richard I. of England (in return for his homage for England) the kingdom of Provence 'up to the Alps,' though this gift remained a mere donation on paper, meant to secure Richard to the service of the Emperor.

But the event of 1378, simply marked a *fait accompli*. Long before many feudal lords had practically got to themselves all real power in all parts of the Alpine region. Hence, if the date 888 marks the beginning of the modern states and divisions of Europe, in the Alpine regions the eleventh and twelfth centuries are far more important. It is at that time that there emerge gradually from the crowd of those who were struggling for power in that region the three families which were ultimately to prevail. It is thus best for us to bring this general sketch of the political history of the Alps to an end about 1033. Henceforward it will be clearer to trace out the separate political history of the three great divisions of the Alps. In the Western Alps the long struggle between the Counts of Savoy, of Albon (later Dauphins of the Viennois), and of Provence ended in the supremacy of France on the W. slope and of Savoy on the E. slope. In the Central Alps (which for our purposes include the Upper Vallais) the struggle lay between the elements of the future Swiss Confederation and the holder for the time of the Milanese. Finally, in the Eastern Alps we have to trace out the gradual absorption of many minor states and principalities

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by the powerful House of Habsburg. Thus, roughly speaking, France, the Swiss Confederation, and Austria struggled for long with the successive owners of Northern Italy. That struggle ended, at least for the present, in 1859-1866; in 1860 the House of Savoy gave up Nice and Savoy (its last possessions on the W. slope) to France, while in 1859 and 1866 the dynasty of Savoy, now aiming at ruling United Italy, obtained respectively Lombardy and Venetia. Thus, nowadays, France, the Swiss Confederation, and Austria share the W. or N. slope of the Alps (Bavaria holds but a very small bit), while Italy rules the whole of the S. slope, save in the case of certain small districts mentioned in the preceding chapter.

But before entering upon the special political history of each of the three main divisions of the Alps we must make some mention of two great facts, each of which concerns the history of the Alpine chain as a whole—the tenth century incursions of the Saracens of La Garde Freinet, and the rule (1810-15) of Napoleon.

In 887 or 888, just as the Empire of Charles the Great was breaking up, some shipwrecked Spanish Saracen pirates settled themselves in an eagle's nest, at La Garde Freinet, built on the ridge of the thickly wooded Montagnes des Maures, above and to the S.W. of Fréjus, on the coast of Provence. That spot remained their headquarters till, in 975, Count William of Provence and Ardoin, Marquess of Turin, extirpated these pests. But in the course of those ninety years these Saracens did a vast deal of harm in many parts of the Alps, and immensely increased the anarchy which there prevailed after the break-up of the Carolingian Empire. About 906 they crossed the Col de Tenda and sacked the monastery of Pedona, at the modern Borgo San Dalmazzo, near Cuneo, while very soon after they pushed again across the Alps, probably by the Mont Cenis, and destroyed the great abbey of Novalesa, in the Dora Riparia valley, W. of Turin. In 916 they sacked Embrun, and its neighbourhood in the upper Durance valley. Holding thus the two great passes of the Western Alps, the Mont Genève and

the Mont Cenis, they established a reign of terror in that part of the Alps. In 921 and again in 923 we are expressly told that they massacred bands of peaceful English pilgrims on their way to Rome. In 929 we hear that they held the passes of the Alps, while in 936 they ravaged the diocese of Coire in Rætia. In 940 they burnt and sacked the great abbey of St. Maurice in the Vallais, and in 942 made a treaty with Hugh, king of Italy, by which they were formally given possession of all the Alps (and hence of the passes over them) between Germany and Italy. Grenoble and its neighbourhood had been occupied already a long time in 954, in which year too they attacked certain Alpine pastures belonging to the monastery of St. Gall, while in 956 the Emperor Otto I. applied for help against them to the Caliph of Cordova. In fact, it was felt that some serious attempt must be made to put a stop to the depredations of these robbers. The climax came when in 973 Majolus, the abbat of Cluny, was captured by them at Orsières, on his way from Rome over the Great St. Bernard. Detailed accounts of his sufferings have been preserved to us, and he was only liberated by the payment of a huge ransom that his monks had great trouble in collecting. Hence in 975 the two nobles of whom we have made mention above took La Garde Freinet by storm, and put every man to the sword. In the fifteenth century breviary of the church of Gap grateful mention is made of this glorious feat of arms, in commemoration of which Count William gave half the town of Gap to God and Our Lady.

To us here these Saracen inroads are important because two of the chief dynasties in the Western Alps (the Counts of Albon, later the Dauphins of the Viennois, and the Counts of Provence) came into prominence through the part they took in repelling these bandits.

Nor were these Saracens the only bandits who made the Alps unsafe in the tenth century, for we often hear of incursions by parties of Magyars or Hungarians, in particular of a violent attack on the monastery of St. Gall in 926, and of another raid across the Alps in 954.

The second point relating to the Alps as a whole which may

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best find a place here, before we enter on the special consideration of the various divisions of the great chain, is the way in which Napoleon very nearly rivalled Charles the Great in his political domination of the Alpine region. It is no doubt true that the mediæval Emperors, after the kingdom of Burgundy fell back to them in 1032, till the rise of the Swiss Confederation, and of that of the House of Savoy, as well as till the steady eastward progress of the French kingdom, exercised a more or less shadowy suzerainty, rather than sovereignty, over the whole Alpine region. But Napoleon's rule from about 1810 to 1814 was far more real, though it did not take in quite all the part of Europe which interests us. As Emperor of the French (since 1804) he held as heir of the Republic or as conqueror (besides Dauphiné and Provence) Savoy and the county of Nice (acquired 1792), Geneva and its neighbourhood (1798), Piedmont (1802), Liguria (1805), and the Illyrian Provinces, *i.e.* part of Carinthia and all Carniola (1809), and the Vallais (annexed in 1810). As king of Italy (1805) he ruled over Lombardy, besides the Valtelline and the county of Bormio (1797), and Venetia (got in two bits, in 1797 and in 1805), as well as the Italian-speaking part of the Tyrol (got in 1809 from Bavaria). As a powerful and well-nigh irresistible 'friend' he controlled the Swiss Confederation since the Act of Mediation (1803), while by means of the Confederation of the Rhine (1806) he was master of the Vorarlberg, Salzburg, and the German-speaking part of the Tyrol, through Bavaria, to which these districts had been made over in 1809. It would thus appear that the only Alpine countries which Napoleon did not at that time or ever reign over were Styria and a part of Carinthia, which remained in the hands of Austria. As regards those relatively small portions of the Alps, Napoleon's dominions were smaller than those of Charles the Great or of the Romans. But most probably his rule was far more effective than that of his predecessors in rougher and less civilised ages. History often repeats itself, but it may be doubted whether this adage will hold true of the rule of a single state or man over the entire chain of the Alps. But what an ideal and much-to-be-envied

position it would be, to have in one's own hands all the keys which opened the way to Italy! It would be sufficient to turn the head of the most prudent ruler of the sedatest of states.

1. THE WESTERN ALPS

(FROM THE COL DE TENDA TO THE SIMPLON)

The struggle in this portion of the Alps lay ultimately between France on the one side, and the House of Savoy on the other. But it was only at a comparatively late date that these two foes stood face to face, for their career in each case had started from small beginnings, and meant the absorption of many smaller rulers.

It was in the eleventh century, just about the time when the kingdom of Burgundy was ending (1032) as a separate state, that three feudal families (Savoy, Dauphiné, and Provence) among those which held sway in the region between the Rhone (below Lyons) and the Alps emerged from the ruck, and stood forth to do battle for supremacy in that part of the Alpine region. They all rose on the ruins of the kingdom of Burgundy.

(1) The first is that of the future *House of Savoy*. In 1025 Humbert with the White Hands is mentioned as Count of Aosta, and in 1036 as Count of the Maurienne (or the valley of the Arc, leading to the Mont Cenis), while in 1034 he perhaps received the Chablais from Conrad II., whom he had helped to secure the crown of Burgundy. His son acquired by marriage (c. 1046) the marquisate of Turin, thus firmly planting his house on the other side of the Alps. The district originally bearing the title-name of Savoy (that between Aix les Bains, Chambéry, and Montmélian) was inherited from a cadet branch about 1050, while about 1082 the Archbishop of the Tarentaise (or the upper valley of the Isère), who in 996 had received from the last king

of Transjurane Burgundy the temporal jurisdiction of that region, became a vassal of the rapidly rising House of Savoy. Further, through the position of the head of the family as protector of the great abbey of St. Maurice, it practically ruled the Lower Vallais, though the Bishop of Sion retained the temporal jurisdiction which he had received in 999 from the last of the kings of Transjurane Burgundy. In short, this house had to all intents and purposes inherited the domains of Rudolf III. of Transjurane Burgundy, so far as regards the central portion of his kingdom. Hence in 1125 we find its head assuming the title of 'Count of Savoy' in the foundation charter of the abbey of Hautecombe, the future burying-place of his race. In the thirteenth century the family whose rise we are tracing acquired (1216) the overlordship of Saluzzo (including the upper Po and Varaita valleys), purchased its long-time capital Chambéry (1232) from its local lord, conquered (1240-1268) a great part of the district of Vaud and the Lower Vallais, and obtained (1243-6) from the abbat of Pinerolo that town with the Chisone valley. The erection of Aosta and the Chablais (just S. of the Lake of Geneva) into a duchy (1238), and the elevation of the head of the house to the dignity of Prince of the Empire (1310), mark the further advance of the House of Savoy, which in 1313 got hold of Ivrea, the link between its ancient possessions of Aosta and of Turin, as well as in 1313 of the Canavese or the upper Orco valley. Finally, in 1356, Amadeus, the 'Green Count,' was made by the Emperor Charles IV. his Vicar or representative within the domains of the House of Savoy, which thus, for all practical purposes, became independent of the Empire.

2. Let us turn now to the second of the three great feudal families we mentioned above, that of the *Dauphins of the Viennois*. It is about 1034 that we first hear of a Count of Albon (between Vienne and Valence, in the valley of the Rhone). This dynasty seems to have come to the front and established its power by virtue of the active part it played in repelling the invasions of the Saracens in the tenth century, several



LES BANS (DAUPHINÉ ALPS) FROM THE PILATTE GLACIER

of its members earlier than Count Guy having been bishops of Grenoble. Its original domains lay in the Graisivaudan valley (that is the bit of the Isère valley between Montmélian and Grenoble) and in the Champsaur (the upper Drac valley). But as early as 1053 it had extended its rule to the Briançonnais, at the head-waters of the Durance. This region (which takes its name from the little Roman town of Briançon) included, however, much more than the upper Durance valley, and its side glens, those of the Clairée, the Guisane, the Vallouise, and the Queyras (or the Guil valley). From Briançon the pass of the Mont Genève, one of the great historical passes of the Alps, leads over to the valley of the Dora Riparia (Césanne, Oulx, Bardonnèche, near the Mont Cenis Tunnel, Exilles, Salbertrand), while from Césanne at its E. foot the Col de Sestrières gives access past Pragelas and Fénestrelles to Pinerolo by the Chisone valley, of which the upper portion (above Perosa) belonged to the Briançonnais: further, from the head of the Guil valley several passes (*e.g.* the Col de l'Agnel and the Col de Vallante) lead over to the head of the Varaita valley (just S. of Monte Viso) wherein are Château Dauphin, Castelponte, and Bellino, all likewise included in the Briançonnais. These minute topographical details may be pardoned because they will enable us better to understand the part played by the Dauphiné in the great struggle for the Western Alps. Thus the future Dauphins (this name will be explained below) had many of the passes, E. slope as well as W. slope, over the Alps, in their own hands. Hence the rulers of the Briançonnais held wide dominions on the other side of the Alps, just like their neighbours of Savoy, who reigned immediately to the N., so that the two houses were bound sooner or later to come into conflict. Before that time arrived, however, the Dauphins had acquired much territory at the expense of their neighbours (the heirs of the Counts of Forcalquier) on the S., the Counts of Provence, of whom we shall speak presently.

In 1232 the Dauphins acquired by purchase (as the ultimate result of a lucky marriage with the heiress in 1202) the Embrunais (or middle reach of the upper Durance valley, and

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so just S. of the Briançonnais) and the Gapençais (between the Durance and the Drac valleys). This extensive addition (confirmed by the Emperor Frederick II. in 1247) enabled the Dauphins to join, as it were, their domains in the Champsaur and around Grenoble with those in the Briançonnais, the great snow-clad mass of the Pelvoux rising between these hitherto isolated possessions. The heir and successor of the Dauphin who made this lucky purchase himself added to the family estates by marrying (1241) the heiress (1268) of the Faucigny (the Arve valley, wherein is Chamonix), but, as we shall see later, this lordship was lost to the House of Savoy in 1355. Of the other transfers from Provence to Dauphiné (the process went on till 1503) we need only mention the annexation, in 1424, in virtue of the will of the last count (d. 1419), of the counties of Die and Valence. But by that time the Dauphiné had ceased to be an independent state, for, as is well known, it was sold by Humbert, the last Dauphin, in 1349, to Charles (later Charles v.), grandson of the king of France. Thus France for the first time touched the Alps. In 1378, as we noted towards the beginning of this chapter, the Emperor Charles iv. named the then holder of the Dauphiné (the eldest son of King Charles v.) Imperial Vicar within the Dauphiné and Provence, thus practically putting an end to the Imperial supremacy in these regions.

Here we may intercalate a few remarks about the origin of the title 'Dauphin' as there has been much confusion on the subject. The name 'Delphinus' (borne as a Christian name by a fourth century Bishop of Bordeaux, by a seventh century Bishop of Lyons, and with a feminine termination, by a fourteenth century female saint) appears first in 1110 as a sort of second Christian name of Guy iv., both during the lifetime of his father and afterwards, and then in 1151 of his son and successor also. The latter's heiress, Beatrice (d. 1228—she was the last of the first race), gave (1193) to her son Andrew (d. 1237) the second name of 'Delphinus,' in order to show his descent. His son, Guy vi. (d. 1270), also bears (1238) this second name (though generally in the genitive case), which at home is treated as a patronymic, though abroad it is tending

to be considered a title. The same is the case under Guy's son, John, whose proper title is always 'Count of Vienne and Albon.' But with John the second race ended, and on his death (1282) his realms passed to his sister, Anne, who had married Humbert, lord of La Tour du Pin. Humbert it was who finally adopted 'Delphinus' as a title, even in the very year of his accession, and soon the change is complete. In 1284 his wife is called 'Delphina' and in 1285 his realms 'Delphinatus.' It should be noticed, however, that Humbert generally adds to the title 'Dauphin' the words 'Comte de Vienne et d'Albon,' only rarely using the form 'Delphinus Viennensis.' In any case 'Dauphin' is a title, and so, if we wish to be accurate, we should speak of the 'Dauphins of the Viennois,' as long as they continued to be an independent dynasty (*i.e.* till 1349). In the closely related family of the Counts of Auvergne the name 'Dauphin' has a similar history, the dates being remarkably parallel. In 1196 it is a Christian name, about 1250 a patronymic, and in 1281 a title. This house, too, is properly named 'Dauphins of Auvergne' till its extinction in the seventeenth century. It is quite certain that the name or title of 'Dauphin' was not borrowed from the arms borne by these families, for oddly enough it was probably in the first years of the thirteenth century that the three houses (all kinsmen) of Dauphiné, Auvergne, and Forez (the last named never bore the title of 'Dauphin,' but that of Count) altered their former arms, and placed on them the dolphin, which thus may be regarded as a case of 'canting arms.'

3. Like their neighbours, the Counts of Albon, the *Counts of Provence* seem to have established their power after the defeat in 975 of the Saracens by Count William. That event, at any rate, vastly increased their authority, for the first count we hear of, Boso, William's father, was simply the Count of Arles. Later they sometimes name themselves 'Marquises' of Provence, as that was a border or 'march' land towards Italy. To us this dynasty is important only as regards the Alpine lands it held. We have

seen above that in 1232 it finally lost the Embrunais and the Gapençais, which it had obtained about 1208 when it became heir to the Counts of Forcalquier (a small town above the right bank of the lower course of the Durance). The next count, Raymond Berengar IV., rebuilt (1231) the little town of Barcelonnette in the Ubaye valley, giving it that name because the elder branch of his house held (with the crown of Aragon) the county of Barcelona. The marriage (1246) of his daughter and heiress, Beatrice, to Charles of Anjou, brother of St. Louis, brought Provence into close connection with the kingdom of France, to which it was finally annexed in 1481 by the testament of the last count. But before that date the county had been shorn of some of its finest districts. Under the House of Anjou the Counts of Provence had acquired (1259-1260, 1306-1347) much territory on the E. slope of the Alps, so that they ruled over many of the Alpine valleys thereon situated, those of the Varaita, the Maira, the Stura, the Gesso, and the Vermenagna. On the extinction of the first Angevin house of the Counts of Provence (1382), the new count, dazzled by the prospect of the crown of Naples (to which he had become entitled by the will of Queen-Countess Joanna) gave up all his rights over these parts to the junior branch of the House of Savoy (from which in 1418 the senior branch inherited them, with Piedmont). The elder branch of the House of Savoy, too, in 1382 acquired the town of Cuneo, which commands the great passes of the Col de l'Argentière, leading by the Stura and Ubaye valleys to Barcelonnette, and of the Col de Tenda, leading by the Vermenagna and Roja valleys to Ventimiglia. Both formed part of the county of Nice, which had in the tenth and eleventh centuries been ruled by its local counts, who acknowledged the Counts of Provence as their suzerain, and later on the town had become practically independent. In the course of the struggle between the second Angevin dynasty of Provence and the junior or Durazzo branch of the House of Naples, the former was on the point of occupying Nice, which submitted (1388) to the House of Savoy, rather than accept the rule of the new line of Counts of Provence. In this way the great county of Nice (including

the valley of the Var, with its tributaries, the Tinée and the Vésubie, together with the uppermost bit of that of the Verdon, as well as the valley of the Ubaye which communicates with the Tinée valley by easy passes), split off from Provence and came into the possession of the Counts of Savoy, this inheritance including only the *middle* bit of the Roja valley. Thus the county of Provence ceased to have any relation to the Alps, and passes out of our sight.

We are now in a position to consider the final struggle for the Western Alps between France (the heir of the Dauphins) and the House of Savoy (which in 1418 had inherited Piedmont from its cadet branch). It may be roughly summed up in the statement that both parties gradually withdrew, as it were, the feelers which each possessed on that slope of the Alps whereon their interests were becoming less and less important—in short, that each, however unconsciously, tried to make the crest of the Alps the frontier between their territories. In modern phrase, an ‘adjustment’ of frontiers was urgently called for. Now in 1349 the lordship of Faucigny had passed, with the Dauphiné (which had held it from 1268), to France. But this district (the valley of the Arve, and so Chamonix) is just S. of the Chablais (held by Savoy from very early times), and it was naturally very inconvenient for the House of Savoy (which had actually ruled in the Faucigny, 1253-1268) to have a French wedge thrust in between divers of their own territories. Hence in 1355 France gave up this district (with Gex, N. of Geneva) to Savoy, receiving in exchange various lands (Voiron, etc.) N. of Grenoble. This was the first step in a long drawn out process. In 1529 the French occupied the marquessate of Saluzzo (the lower Varaita valley, of which the uppermost part had for ages belonged to the Dauphiné), but in 1588 this was won by the House of Savoy, which in 1601 obtained a formal cession from France in exchange for the non-Alpine lands of Bresse, Bugey, and Gex. Nevertheless the uppermost bit of the Varaita

valley, with the various districts in the Dora Riparia and Chisone valleys enumerated in detail above (together with the lower Chisone valley and Pinerolo, 1536-1574, and 1630-1695) remained French, though situated on that slope of the Alps on which the House of Savoy was now setting firm foot: on the other hand, the House of Savoy held Barcelonnette with the rest of the county of Nice on what was becoming the French slope of the Alps. Hence an exchange was advantageous to both parties, and so by the Treaty of Utrecht (1713) the House of Savoy gave up Barcelonnette in exchange for the French districts just named. It was during a temporary reoccupation by France of the lower Chisone valley that there came into existence for a few years (1704-8) the quaint little Vaudois 'Republic of St. Martin,' which was composed of the Germanasca valley (which joins that of the Chisone at Perosa), and during its short life was under the protection of France. It was not till 1860 that the rest of the county of Nice, with Savoy itself, became French finally, though they had been occupied from 1792 to 1815. Thus the frontier between France and the realms of the House of Savoy was 'rectified,' the only exceptions to the 'natural frontier' being (as was pointed out in the last chapter) that the heads of certain Alpine valleys on the S.W. slope were left (for the sake of the hunting rights) in the hands of Savoy, which also kept the upper and lower bits of the Roja valley, as being part of the county of Tenda-Ventimiglia, and so not included in the cession of the county of Nice.

Meanwhile the House of Savoy had been gathering in territory on the E. slope of the Alps other than that obtained from France. It did indeed lose the district of Aigle (1475) and the barony of Vaud (1536) to Berne, as well as the Lower Vallais (1475-6) to the Swiss, who, however, only occupied the Chablais for a few years (1536-1564). But in 1418 the House of Savoy inherited Piedmont from its cadet branch, having the year before obtained from the Emperor Sigismund the title of Duke, and transferring its capital in 1559 from Chambéry to Turin. In 1575 it obtained the county of Tenda and in 1631-1703 the marquessate of Montferrat. By the Treaty of Utrecht (1713) it gained the

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crown of Sicily, which in 1720 it exchanged for that of Sardinia, this last-named title being only altered in 1861 for the proud name King of Italy. From the Milanese it won by the Treaty of Utrecht (1713) the upper valley of the Sesia, and in 1743, by that of Worms, the Val d'Ossola (with its side glens), the cession of these relatively small bits of territory being of importance to us as they affect the political history of Monte Rosa. To complete our tale of how the House of Savoy came to rule over the entire E. slope of the Western Alps let us add that Genoa and the coast were won in 1815, while Lombardy and Venetia fell in respectively in 1859 and 1866, but these regions belong to the Central and Eastern Alps, of which the political history will be sketched below.

POLITICAL PEAKS (Western Alps)

After this long journey through history, let us apply what we have learnt from it and consider briefly what was formerly the political status of some of the great mountain groups in the Western Alps, for, after all, they, with their neighbours in the Central and Eastern Alps, form the real subject of this work.

In the *Maritime Alps* the highest summits are now Italian, even most of those on the watershed, because they came to the House of Savoy with the county of Nice (1388), and, for the sake of Victor Emmanuel's hunting rights, were *not* given over to France in 1860. The highest purely French summit in this region is the Mont Pelat (10,017 ft.) while the frontier runs over the Mont Tinibras (9948 ft.), but the highest peak of all, the Punta dell' Argentera (10,794 ft.) is wholly Italian, and rises on a spur N. of the main watershed. Farther N. the lofty peaks (the highest is the Aiguille de Chambeyron, 11,155 ft., which is on a spur W. of the main ridge) round the head of the Ubaye valley are now French, so far as regards their W. slope, since they were handed over to France at the Treaty of Utrecht (1713), and so till the same date was a portion of their E. slope (towards the head of the Val Varaita); but that bit of the E. slope then

(1713) became Savoyard, as did the remainder of the E. slope in 1601, when Savoy got it with the marquessate of Saluzzo.

Monte Viso, itself, like so many great Alpine summits, rises on a spur (this time E.) of the main chain. Its S. slope was therefore part of the Dauphiné till this became French in 1349, and continued so till 1713, while its N. slope was in the marquessate of Saluzzo, and so became Savoyard in 1601 only.

The great mass of the *Dauphiné Alps* stands W. of the main chain, so that they have been wholly French from 1349, when the Dauphiné was sold to that power, but their S. slope was Provençal, till the Gapençais passed to the Dauphiné in 1232. In the case of the high ranges that rise in the Maurienne (Arc valley) and Tarentaise (upper Isère valley) they were always Savoyard from the eleventh century till 1860, when Savoy was ceded to France. The highest summit therein (the Grande Casse, 12,668 ft.) is far to the W. of the main chain, so that it is now wholly French. But the other slope of the Alps of the Maurienne is Italian now, since it was formerly Savoyard. Yet the frontier line is so drawn that the summit of the Rochemelon (11,605 ft.) was in 1860 left in Italy, as it before had been for ages in the hands of the House of Savoy, which can thus still boast of having owned since the eleventh century the first snow mountain in the Alps that was ever scaled by man (1358). On the E. side of the main watershed rises the Grand Paradis group, of which the N. slope has always been Aostan (that is, Savoyard), though the S. slope only came to the House of Savoy when it acquired the Canavese (upper Orco valley) in 1313.

The political history of the chain of *Mont Blanc* has been singularly varied. As is well known, the S.S.E. slopes are now Italian, and the N.W. slope French (as part of Savoy), while the N.E. end is Vallaisan (and so Swiss). What is the explanation of this threefold division? It is simply the result of historical causes. The S. slope is now Italian because the House of Savoy has held the valley of Aosta, one of its earliest possessions, since the middle of the eleventh century. The N. slope (Chamonix, or the upper Arve valley) came in 1268 to the Dauphiné through a lucky



MONT BLANC FROM THE RIDGE OF THE MONT HERBETET

marriage (1241) with the heiress of the Faucigny, and remained with that dynasty till 1349, when it passed, with the rest of its dominions, to France. But this state of things was very inconvenient for the Count of Savoy, who had held the district (1253-1268), as it thrust up a great French wedge between the districts of Aosta (S.) and the Chablais (N.), so that in 1355 he got it by exchange in return for some lands near Voiron. It did not become French (of course, from 1349 to 1355 it was part of the Dauphiné, and so not strictly of France) till 1792, was lost in 1814, and was won finally in 1860. Thus from 1355 to 1860 (save 1792-1814) the N. slope of the chain was Savoyard, as the S. slope has always been. There now remains to account for that odd little Swiss bit at the N.E. extremity of the chain. In the thirteenth century the Lower Vallais was taken from the Bishop of Sion by the House of Savoy, but in 1475-6 it was recovered by the bishop, with the aid of the 'tithings' of the Upper Vallais, and remained a subject district till it was freed in 1798, becoming Swiss, when the Vallais became Swiss, in 1815. Note, too, that the Swiss and French bits of the chain (but *not* the Italian bit) are included in the Swiss and N. Savoyard districts which were neutralised in 1815 at the Congress of Vienna.

As regards the actual summit of *Mont Blanc* the French (and their official maps) draw the frontier line slightly to the S. (over the Mont Blanc de Courmayeur) of the culminating point. But the Italians (and *their* official maps) make the frontier line follow the watershed, and so pass over the actual top, and not to its S. Some of the older maps seem to be in favour of the French contention, as well as apparently the map annexed to the report of the Boundary Commission of 1861; but this last map is declared by the Italians to reproduce a mistake of the original Sardinian map, published in 1854, but later corrected. The text of the Report favours the Italian contention, stating that the boundary follows the watershed, and so passes over the summit of Mont Blanc. The *Grand Combin* itself rises to the N. of the main watershed, so that the W. slope of this group was Savoyard from the thirteenth century to 1476, but its E. slope (Val de Bagnes side) was Savoyard for a much longer time, as the upper Val de

Bagnes was given in 1252 by the Count of Savoy to the lords of Quart in the Aosta valley, and seems to have remained Aostan (despite many attacks by the Vallaisans) till the early seventeenth century, when it finally became Vallaisan. Almost all the peaks round Arolla stand N. of the main watershed, and so are and have always been purely Vallaisan. Those on the watershed share the fate of the Matterhorn, and are half-Vallaisan and half-Aostan (that is, Savoyard). The highest summit, the Dufourspitze (15,217 ft.), of Monte Rosa, rises W. of the watershed, and so is entirely Swiss (that is, Vallaisan), being thus the loftiest summit of Switzerland, which is not the Mischabel or Dom, as often stated. The other summits of Monte Rosa mainly rise on the watershed itself. Hence their N. or W. slope has always been Vallaisan; but their S. and E. flank was always in the Milanese till in 1713 the upper Val Sesia was given to the House of Savoy, which also in 1743 got, with the Val d'Ossola, the side glen of the Val Anzasca, above which Monte Rosa towers up so grandly.

It is amusing to think that the great Alpine summits have thus had divers political fates. This, however, was not due to any action on their part, but to the struggles of the human midgets at their feet, who were perhaps regarded by the cloud-capped mountains as intruders, dividing up that to which they had no right save force. Till very recently, too, these midgets never dared to come within the range of the heavy artillery (such as avalanches) of the Alpine giants, which came into existence geologically before man, and may perhaps long survive his extinction.

2. THE CENTRAL ALPS

(FROM THE SIMPLON TO THE RESCHEN SCHEIDECK)

In tracing the political history of this region we are at once confronted by a difficulty which does not exist either in the Western or in the Eastern Alps. It relates to the great mountain masses which rise like islets at some distance from the main chain, being connected with it by a narrow sound or

isthmus only. Now in the Western Alps such ranges passed from one dynasty to the other without any local struggle, the S. slope of the Pelvoux group by virtue of purchase in 1232 by the Counts of Albon from those of Provence, while the Western Graians (between the Maurienne and the Tarentaise) were quietly ceded in 1860 by the king of Sardinia to France, together with the rest of Savoy. Again, in the Eastern Alps the tangled ranges that stand N. of the main chain were the subject of a long struggle, but of the same struggle in which the main chain was involved. In the Central Alps the state of things is quite different. Here we have a protracted struggle for the main chain between the holders of the Milanese and the three Swiss districts which bordered immediately on that duchy—the Vallais, Uri, and the Grisons. Quite apart from and totally distinct from this struggle, there is another fight going on between these three border Swiss districts and their rivals (also Swiss) to the N.—in short, in the case of the Swiss ranges which rise N. of the main chain, a sort of civil territorial war is waged which has only the remotest connection, if indeed it has any, with the international struggle taking place to the S. Thus while the Vallais, Uri, and the Grisons all contend with the holders of the Milanese on the S., they also resist or attack their neighbours to the N. It is true that Berne never got a permanent footing in the Vallais, but Uri and the Vallais did secure pasturages which lie within the limits of Berne and Unterwalden and Glarus, while the Grisons greatly extended their domains towards the N. by first securing the support of the communities which from 1436 onwards formed the League of the Ten Jurisdictions, and then by buying up the rights therein of the lords of the manor.

We must thus consider the international and the local political history of the Central Alps in two separate sections, in order not to lose the thread in this tangled labyrinth.

A.—THE STRUGGLE WITH THE MILANESE

The kingdom of Italy (*i.e.* Lombardy or N. Italy) lasted from the conquest of the Lombards (774) by Charles the Great till

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the time of the Great Interregnum (1254-1273), when it was lost to the Emperors. It then broke up into a number of bits, held by powerful cities or great feudal nobles. Here we have to follow the fortunes of one of these cities.

In 1277 the prosperous city of Milan, situated at the meeting-point of the routes over many Alpine passes, and in the fertile plain of Lombardy, submitted to the wealthy House of Visconti. In the course of the fourteenth century the new lords of Milan greatly increased their domains at the expense of other families. In 1335 they secured Como and so Chiavenna and the Valtelline, in 1342 Bellinzona and Locarno, about 1350 Bormio and Poschiavo, in 1354 the Novarese, and in 1378 and 1381 the lower and the upper Val d'Ossola, while in 1395 the Emperor Wenceslaus raised them to the dignity of dukes. This rapidly growing power naturally excited the jealousy and the fears of the communities which were rising on the N. slope of the Alpine chain, and so the inevitable struggle began. But before attempting to trace its various phases let us briefly sketch the future political fortunes of the Milanese, as it may be useful for the understanding of the later sections of our history. The Visconti dynasty came to an end in 1447, and in 1450 was replaced by that of the Sforzas, the founder of which had married the illegitimate daughter of the last Visconti. The Sforzas ruled, at least in name, till 1535, but the duchy was occupied at several times by invaders, for it had become an object of desire not merely to the Swiss, but to the French and to the Habsburgs. Thus the French held it from 1500 to 1512, and again from 1515 to 1521, while from 1512 to 1515 the Swiss occupied it, under the nominal rule of Maximilian Sforza, whose brother ruled from 1521 to 1535. On the extinction of the Sforza family (1535) the Milanese reverted to the Emperor Charles v.; in 1540 he granted it to his son, Philip, who in 1556 became king of Spain. It remained part of the Spanish inheritance till 1714, when by the Treaty of Utrecht it became Austrian, which it had been practically since 1706. Towards the end of the eighteenth century the Milanese went through a rapid succession of political changes. In 1796 it formed part of the Lombard Republic; in

1797, of the Cisalpine Republic ; in 1802, of the Italian Republic ; and in 1805, of the kingdom of Italy. Finally, in 1814, it returned to the House of Austria, which ruled therein till 1859, when the Milanese became part of the Sardinian kingdom, and soon after (1861) of the new kingdom of United Italy.

But during these centuries the Milanese had sustained both permanent losses (the Val Leventina in 1440, Poschiavo in 1486, Bellinzona in 1500, Lugano and Locarno in 1512) as well as temporary losses (Bormio and Chiavenna, with the Valtelline, from 1512 to 1797). These losses were gains to the Swiss, and we must now turn to that side of the subject.

A glance at a map will show that between the Simplon and the Stelvio Pass four long valleys run up from the S. to the main watershed of the Alps, in each case seeming to thrust back this watershed towards the N. These valleys are those of Ossola or of the Tosa, of Leventina or the Ticino, of the Liro or of San Giacomo (above Chiavenna), and of the Valtelline or of the Adda (the history of the second pair being identical). Being both easy of access from the N., and commanding the rich plains on the S., these valleys formed the scene of the prolonged struggle the history of which we are studying. It resulted in the permanent loss of the Val Leventina only, the three other glens being only held for a longer or shorter time by the invaders from the N. In fact, this struggle is really a series of three more or less separate struggles, carried out by different actors.

(a). Let us consider first the *Val d'Ossola*, or the Tosa valley, which at its head (the Val Formazza) is still inhabited by German-speaking colonists from the Vallais, who came thither in the thirteenth century. Into the Tosa valley lead, directly or indirectly, all the great passes over the Alps from the Upper Vallais to the E.—the Monte Moro, the Antrona Pass, the Simplon, the Albrun Pass, and the Gries Pass. Now all these passes were very important from the commercial point of view, especially the Gries, as over it came by way of the Grimsel much merchandise to and from Berne. Hence, quite apart from any strategical considerations, the possession of the Val d'Ossola meant much to the Swiss, and in particular to the Upper Vallaisans.

A short occupation in 1410 by Uri, Obwalden, Glarus, Zug, and Lucerne was followed by a longer one (1411-14) by all the Confederates save Berne (*i.e.* Uri, Schwyz, Unterwalden, Lucerne, Zug, Glarus, and Zürich), who had, however, to yield possession to the Duke of Savoy's troops which crossed the Simplon and so took them in the rear. Retaken in 1416 by the Confederates (save Berne and Schwyz), helped by the Vallaisans, the Val d'Ossola had to be given up, like the other Milanese conquests by the Swiss, after the disastrous battle of Arbedo in 1422. But in October-November, 1425, another raid by the Confederates (helped this time by Berne as well as by the Vallais) across the Albrun Pass led to a short occupation, which came to an end in 1426, when the valley was sold back to the Duke of Milan. The prize was, however, too tempting to be definitively given up, and was once more held from 1512 to 1515, with other Italian conquests, by all the twelve Confederates, save Appenzell. But after the fight of Marignano (1515) the Val d'Ossola was finally lost to the Swiss, despite their century's struggle.

(b). The Swiss were more fortunate in the case of the *Val Leventina* or the Ticino valley, down which now thunder the huge engines of the St. Gotthard railway, and of the *districts lying to the S. of that Val*. The St. Gotthard is the great pass by which Uri communicates directly with the S., and so the men of Uri did their best to extend their power in that direction, as well as in others, for they could not abide to be shut up for good in their narrow valley of the Reuss. Hence in 1403, with the help of Obwalden, they occupied the long-coveted Val Leventina (which properly belonged to the metropolitan see of Milan), and in 1419 further secured their position by the purchase from the Sax lords (who ruled in the adjoining Val Mesocco, and had in 1403 taken the town from Milan) of Bellinzona, which is the key to the entrance into the mountains. But both were lost in 1422 after the fatal day of Arbedo. A second attempt was more successful. This time it was made by Uri alone, which in 1440 won back the Val Leventina (and ruled over it till 1798), while in 1500 (helped by Schwyz and Nidwalden) Uri secured for good Bellinzona, together with the Val Blenio and the 'Riviera' or

region between Biasca, at the junction of the last-named valley with the Val Leventina, and Bellinzona—this entire district being ruled till 1798 by the three Cantons, whose names are still borne by the three fifteenth century castles at Bellinzona. Finally, in 1512, the Swiss, on the point of becoming the masters of Milan, occupied, and that for good, the fertile region of Locarno, the Val Maggia, Lugano, and Mendrisio, and did *not* lose them in 1515 as they lost Milan itself: this region was ruled by all the twelve Confederates, Appenzell having no share (admitted in 1513). In 1798 the Swiss, however, lost *all* their Italian conquests to the Helvetic Republic, of which the Canton of Bellinzona took in that town and the Val Leventina, while the Canton of Lugano comprised the acquisitions of 1512. But in 1803 both these Cantons were united to form the single one of Tessin or Ticino, which was then admitted to full rights as one of the 19 Cantons.

Such is the history of 'Italian Switzerland,' a region which at first astonishes the traveller, as he cannot see how what are clearly in point of climate, etc., parts of Italy can possibly belong to the Swiss. It simply consists of the conquests made by the Swiss in the fifteenth century, and not lost by them (as was the Val d'Ossola). This fact accounts also for the purely conventional nature of the frontier line, especially S. of Lugano, for it extends to within three miles of the town of Como (which, no doubt, the Swiss would have liked to swallow also), while the Canton of Tessin includes most of the Lake of Lugano and the most northerly bit of the Lago Maggiore. Scarcely anywhere else can historical geography explain a more curious state of things, for Tessin is simply a great slice of the Milanese in the hands of non-Italians.

(c). We now pass to the case of the possessions (that is, the *Valtelline*) held by the Grisons, or the Three Leagues of Rætia, in the Milanese. But we must take care not to include in these the Val Bregaglia (down which runs the road from the Maloja Pass towards Chiavenna), for, though in 803 Charles the Great bestowed it on the Bishop of Como, in 960 it was given by the Emperor Otto I. to the Bishop of Coire (who thus held

both slopes of the Septimer Pass, the principal mediæval route over this portion of the Alps), and has never since been lost by the Grisons, his heirs in title. We may also dispose at once of the case of the Val Mesocco (or Misoxthal), which in 1026 was granted (in order to guard the Alpine passes) to the Bishop of Como. But his powers, by 1219 at the latest, had passed into the hands of the Sax lords, by whom the valley (included in the Upper Rætian League since 1480) was sold in 1494 to the Trivulzio family of Milan, which in 1496 entered the Upper Rætian League, and in 1549 sold to it all their manorial rights. As the Val Mesocco joins the Val Leventina at Bellinzona its history forms a link between that of the Milanese conquests of the Grisons and those of Uri and its allies. Further, the possession of this valley by non-Milanese means that both sides of the San Bernardino Pass have since 1496 been in Rætian (*i.e.* practically Swiss) hands, a fact which has had its influence on the historical fortunes of that pass, early known as the 'Vogelberg' or 'Mons Avium,' but in the fifteenth century renamed from a chapel dedicated to San Bernardino of Siena, on its S. slope.

Apart from the cases of the Val Bregaglia and the Val Mesocco, the struggle in this portion of the Alps lies between the holders of the Milanese, as successors in title (in 1335) of the Bishop and city of Como, and the Three Rætian Leagues. In 775 Charles the Great, after overcoming the Lombards, made a gift of the Valtelline (with Poschiavo and Bormio, as it would seem from the confirmation granted in 843) to the monastery of St. Denis near Paris, which, probably, never exercised any real power in these remote districts. At any rate, in 824 Lothair I. gave them to the Bishop of Como (who had received Chiavenna in 803), though in 841 he reserved the suzerainty to St. Denis. But at some later date these districts (save Chiavenna) were committed to the charge of the Bishop of Coire, a faithful friend of the Emperors, and so thought worthy of being intrusted with the guardianship of the Alpine passes. However, from at least the early thirteenth century the authority of the bishops was practically superseded

in Bormio and Poschiavo by that of their powerful vassals, the Matsch family, which, further, in 1313, obtained from the Emperor Henry VII. a mortgage of the Valtelline. But the rising power of the Visconti at Milan proved too strong, after their entrance on the lands of Como (1335), even for the Matsch family. About 1350 (the Valtelline in 1336 already) all these districts were lost to them and their master, the Bishop of Coire, and formed part of the Milanese, soon (1395) to become an independent duchy (Poschiavo was again held by the Bishop of Coire from 1394 to 1470). On the other hand, Chiavenna had been given in 803 by Charles the Great to the Bishops of Como, whom the Bishops of Coire were never able to oust, despite several attempts, and whose supremacy in that region they acknowledged in 1219.

Now in 1385 the ruler of Milan, Barnabas Visconti, was slain by his nephew, Gian Galeazzo, but the youngest son of Barnabas, named Mastino, escaped and took refuge with the Bishop of Coire, to whom in 1404 he made a donation of all his rights over Bormio, the Valtelline, Poschiavo, and Chiavenna. This donation was the pretext, in virtue of which the bishop (and his heirs, the Three Rætian Leagues) claimed possession of these districts. But they actually acquired them at different times—Poschiavo in 1486, Bormio, Chiavenna, and the Valtelline in 1512. Poschiavo was never lost again, while the other districts remained in the hands of the Rætian Leagues till 1797, then passing to the Cisalpine Republic, and henceforth sharing the fortunes of the rest of the Milanese (Italian Republic, 1802; kingdom of Italy, 1805; Austria, 1814; Sardinian kingdom, 1859; and United Italy, 1861). Let us note, too, that the three villages (Dongo, Domaso, and Gravedona) near the N. end of the Lake of Como, which are known as the 'Tre Pievi' (the three parishes), submitted to the Rætian Leagues in 1512, but were lost to them in 1525, and became again part of the Milanese.

The valley of Livigno, which lies on the N. slope of the main Alpine chain, shared throughout the fortunes of the county of Bormio, in which it was included, and hence, with

the Val di Lei (in the county of Chiavenna) is, as we pointed out in the last chapter, the only bit of Italian territory which stretches over on to the non-Italian slope of the Alps. In 1635 Livigno was the scene of a remarkable campaign by Rohan and the French against the Imperial troops, and it is most interesting to trace out on the spot, as the writer of these lines has done, the various phases of this little Alpine war. This campaign of Rohan formed part of the great struggle between the French and Spanish for the possession of the Valtelline, by means of which the Spanish holders of the Milanese could easily communicate with the Austrian branch of the Habsburgers in the Tyrol. That struggle was prolonged for nearly twenty years (1620-1639), the French holding the Valtelline 1624-7 and 1635-7, and the Pope in 1623 and in 1627, while the Spaniards occupied it for most of the remainder of the time. The famous Grisons leader, Georg Jenatsch, supported the French in 1635, but then went over to the Spanish side till he was assassinated in 1639, and a little later the Spaniards restored the valley to the Rætian Leagues.

POLITICAL PEAKS (Central Alps)

The peaks which rise on or near the watershed of the Central Alps are not so well known to most people as are those in a corresponding situation in the Western Alps. The two loftiest summits of the Lepontine Alps, the Monte Leone (11,684 ft.) and the Blindenhorn (11,103 ft.), both rise on the watershed, and so have shared the fortunes of the Upper Vallais and of the Val Formazza, the highest reach of the Val d'Ossola. But one of the next in height, the Basodino (10,749 ft.), rises to the E. of the main chain, though it, too, is on a political frontier, namely that between the Val Formazza and the Val Maggia, so that its E. slope has been Swiss since 1512 only. If we go on in a N.E. direction, we find that the two highest summits of the Gotthard group, the Pizzo Rotondo (10,489 ft.) and the Pizzo di Pesciora (10,247 ft.), are on the main watershed; hence their W. slope is Vallaisan, but their E. slope, being in Tessin,

is Swiss since 1440, when the Val Leventina was finally acquired by Uri. The third peak in that group, the Wyttengewasserstock, has, however, a still more curious history: its E. and lower point (9922 ft.) is on the principal watershed, but it rises also at the point of junction of the boundaries of the cantons of Uri, Valais, and Tessin, and thus is wholly Swiss, though its different slopes have become Swiss at different times—the N. slope in 1291 (Uri), the E. slope in 1803 (Tessin), and the W. slope in 1815 (Valais); further, this lower summit sends down streams to three seas (like the Pizzo Lunghino, of which more below), in this case, by the Ticino and the Po to the Adriatic, by the Rhone to the Mediterranean, and by the Reuss and Rhine to the North Sea. On the other hand, the far finer higher summit (10,119 ft.) rises simply on the frontier between the Valais and Uri. Continuing our journey eastwards we note that both Scopì (10,499 ft.) and the Piz Medel (10,509 ft.) in the Adula Alps rise on the watershed between the Grisons and Tessin, as does the culminating point of the group, the Rheinwaldhorn (11,149 ft.). With the last-named peak we finally quit Tessin, which since the Basodino and the Pizzo Rotondo has had such a curious influence on many summits on the main watershed, showing thus that it is purely by an historical accident or oddity that Switzerland extends across the great line of the Alps. On either side of the Splügen Pass Piz Tambo (10,749 ft.) and the Surettahorn (9945 ft.) rise on the great watershed, and also, to our relief, on the frontier between the Grisons and Italy. But beyond, at the Pizzo Gallegione (10,201 ft.) the political frontier dips S.E., so that while that summit is shared by Italy and the Grisons, its neighbours to the E., such as the Pizzo della Duana (10,279 ft.) and the Pizzo Lunghino (9121 ft.), are, though on the main watershed, yet not merely wholly Swiss, but belong wholly to one single Swiss canton, for both the Avers valley and the Oberhalbstein, as well as the Val Bregaglia, form part of the Grisons. The Pizzo Lunghino, too, occupies a very remarkable topographical position, since from its flanks streams flow to three seas, in this case, by the Rhine to the

North Sea, by the Maira and Adda and Po to the Mediterranean, and by the Inn to the Black Sea: it is, too, the point at which the ranges enclosing the Engadine split off from each other. Keeping along that to the S.E., and so on the main crest of the Alps, we find that almost all the higher summits of the Bernina Alps are half in the Grisons and half in the Valtelline (*i.e.* Italy): such is very nearly the case with Piz Bernina (13,304 ft.), and quite the case with Piz Roseg (12,934 ft.) and Piz Zupó (13,151 ft.), but the splendid Monte della Disgrazia (12,067 ft.) is an exception to this general rule, for it rises S. of the watershed, and so is wholly within the Valtelline, though it was wholly Swiss, or rather Rætian, from 1512 to 1797.

More to the E., between the Bernina, Reschen Scheideck, and Stelvio Passes, the physical watershed and the political frontier seem to take a pleasure in not agreeing with one another, the cause being that Poschiavo, and the upper Münster valley, though on the S. slope of the Alps, are politically Swiss, while the valley of Livigno, though on the N. slope of the great watershed, is politically Italian. Starting from the Bernina Pass the physical watershed joins the political frontier near the Corno di Campo (10,844 ft.), which, therefore, like its neighbour on the S.E., the Cima di Saoseo (10,752 ft.), is half Swiss and half Italian, though the two loftiest summits between the Bernina Pass and the Reschen Scheideck or the Stelvio, namely the Cima di Piazzì (11,283 ft.) and the Cima Viola (11,103 ft.), rise to the E. of the frontier, and so are wholly Italian (though Swiss from 1512 to 1797), as being situated in the county of Bormio. From the Corno di Campo the watershed runs, roughly speaking, N.E., along the E. side of the Livigno valley, and on the rolling plateau which forms the summit-level of the Fraële Pass (6398 ft.) meets the political frontier, which has made a long round, first N., then N.E., finally S.E., and formed the boundary between the Engadine and the Livigno valley—Piz Languard (10,716 ft.) stands rather to the W. of the frontier, so is wholly Swiss. But, having met, the two boundaries part at once, not

to meet once more till they reach the Urtiolaspitze (9551 ft.) to the N.E. of the village of Münster in the Münster valley. The political frontier soon bears S.E. from the Fraële Pass in order to gain the Stelvio Pass (9055 ft.), just N. of which rises the low summit named the Dreisprachenspitze (9328 ft.), as it marks the meeting-point of the districts in which Italian, German, and Ladin are spoken, and also, since 1859, the meeting-point of the political frontiers between Switzerland, Italy, and Austria: the Austro-Italian frontier runs N. and S. across the Stelvio (the carriage road, of course, runs E. and W.), that between Switzerland and Italy, which we are following, keeping N. for a while till it bends N.W. to cut across the Münster valley before reaching the Urtiolaspitze. Meanwhile from the Fraële Pass the watershed keeps N.E. to the Ofen Pass (7071 ft.), and then bears E. to the Urtiolaspitze. Both continue for a short distance along the ridge to the N. of the Urtiolaspitze, but then the political frontier keeps N. so as to reach the Lower Engadine at Martinsbruck, while the watershed runs E. to the Reschen Scheideck Pass (4902 ft.), our limit between the Central and the Eastern Alps. Surely there is no other region in the Alps where the physical and the political frontiers are so interlaced as in that which we have just been describing, and this simply for reasons connected with the political history of the district. Did the theory of natural frontiers hold good in this part of the Alps, Poschiavo and the upper Münster valley *should* be respectively Italian and Tyrolese, while Livigno *should* be Swiss. Hardly anywhere else in the Alps, save in the Maritime Alps, or near Capriole or Cortina, in the Dolomites, does the traveller realise better the meaning of the phrase 'a conventional frontier.' It is history, and history alone, which can supply the key to such complicated puzzles.

B.—THE STRUGGLE TOWARDS THE NORTH

We must now turn our eyes towards the North. After the reversion (1032) of the kingdom of Burgundy to the

Empire, Conrad II. committed (1038) the rule in Burgundy (roughly speaking, the W. half of present Switzerland) as well as the duchy of Alamannia or of Swabia (roughly speaking, the E. half of present Switzerland), to his son, Henry, who, elected next year to the Empire, was able to maintain his power in these regions, with a strong hand, till his death (1056). In 1057 both dignities were bestowed by Henry's widow on her favourite, Rudolf of Rheinfelden, who, not content with this, set himself up in 1077 as rival Emperor, supported by the Pope, against his brother-in-law, Henry IV., though this act of daring cost him his crown and his life (1080). Rudolf's heir and son-in-law, Berchtold of Züringen, however, continued the struggle for these lands (though not for the crown) against the Hohenstaufen family, which Henry IV. had invested (1079) with the duchy of Swabia. The Züringen dynasty was successful, for in 1097 the Hohenstaufens were pushed back behind the Rhine and the imperial fief of Zürich given to their rival, while in 1127 the Emperor made the Duke of Züringen '*Rector* of Burgundy,' or his representative in that region, thus practically abdicating, so far as regards this portion of his realm, in favour of the powerful Züringen dynasty. The Züringen family became extinct in 1218 (though by the foundation of Fribourg, about 1177, and of Berne in 1191, it left an indelible mark on its dominions), and all its fiefs reverted to the Empire, the power of which in these regions was getting weaker and weaker. On the one hand, various 'free cities' were extending their borders, and next, a new and even more powerful family than the Züringens, that of Habsburg (the original seat of which was the castle of Habsburg, near Brugg, in the Swiss Aargau) in 1264 inherited the wide domains of the Counts of Kyburg (the castle of that name is near Winterthur), themselves the heirs (1173) of the earlier Counts of Lenzburg (the castle of that name is not far from Aarau). When in 1273 the head of this great house, Rudolf, became Emperor, it seemed as if nothing could stop its victorious progress in the Alpine lands of the Central Alps.

But in those lands, during the prolonged struggle between

the Emperor and his great nobles, a set of tiny free communities had been freeing themselves from any allegiance save that to the Empire, a position which in those times meant practical independence. Hitherto the Habsburgers had, as regards these communities, appeared as distant and so not much to be feared feudal overlords or lords of the manor. But on April 16, 1291, Rudolf purchased from the abbey of Murbach, in Alsace, its town of Lucerne, situated close to these free communities, which thus foresaw the approach of a desperate struggle with this rapidly advancing house. Rudolf died on July 15, 1291, and, on August 1 following, the representatives of these communities, Uri, Schwyz, and Unterwalden, concluded the 'Everlasting League' (mainly a renewal of an older alliance probably made during the Great Interregnum, 1254-1273), which was the germ of the Swiss Confederation. That League was destined to stem the progress of the Habsburgers in the Central Alps. But the goal was only won by the surprising victories of Morgarten (1315), of Sempach (1386), and of Näfels (1388), while the League was strengthened in 1332 by the entrance of Lucerne, and in 1352 by that of Glarus and Zug, and by the adhesion of the non-Alpine towns of Zürich (1351) and of Berne (1353). These were the 8 Cantons, the number being later raised to 13 by the admission in 1513 of the mountain land of Appenzell, as well as of the non-Alpine towns of Fribourg (1481), Soleure (1481), Bâle (1501), and Schaffhausen (1501). After 1499 the Swiss Confederation was no longer considered to be subject to the jurisdiction of the Imperial Chamber (the highest judicial tribunal, erected in 1495), though it was only by the Treaty of Westphalia (1648) that its independence of the Empire was formally recognised. In 1815, at the Congress of Vienna, the whole of the Swiss Confederation was made neutral territory, and its neutrality was guaranteed by the Great Powers (including England). The old system broke up in 1798, but on the reconstitution of the Helvetic Republic by Napoleon's Act of Mediation (1803) with 19 Cantons, the Alpine lands of the Grisons, Tessin, and Vaud, were received as full members, as well as the non-

Alpine lands of St. Gall, Thurgau, and Aargau. The admission in 1815 of the Alpine district of the Vallais, as well as of Neuchâtel and Geneva, completed the Swiss Confederation as it exists to-day, with its 22 Cantons.

This brief sketch of the territorial growth of the Swiss Confederation has been given here because it helps us better to understand the proper subject of this sub-section, the struggle of the Alpine Cantons among themselves. That domestic struggle would have been impossible had not these previously assured themselves against external dangers on the north—in short, against the encroachments of the Habsburgers. Once secured against that enemy they could dispute freely among themselves.

This local struggle resolves itself from our point of view (for in this work we deal with the *Alpine* Cantons only and not all the Swiss Cantons in general) into three sets of struggles, the protagonists in each case being oddly, yet naturally, just those three border lands of the Vallais, Uri, and the Grisons, whom we have watched during their more or less successful attempts to secure to themselves some of the rich lands on the other slope of the Alps. Each now strives not with the common enemy, the holder of the Milanese, but with its neighbour on the north, from which they are more or less securely separated by the Alpine ranges rising N. of the main chain, for a passage over them can be forced at several points just as it can across the great divide itself.

(a) **The Vallais and Berne.**—The Vallais (which takes its name from the old designation 'Vallis Pœnina,' and so should be spelt as above, the ordinary omission of one of the 'ls' dating only from about 1800) now comprises the upper valley of the Rhone, from its source to the Lake of Geneva. But earlier its limits were narrower. By the donation of temporal jurisdiction made in 999 by Rudolf III., king of Transjurane Burgundy, to the Bishop of Sion, it is probable that the lower limit was fixed at about Martigny. But the en-

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croachments of the House of Savoy (partly in their character as 'protectors' of the great monastery of St. Maurice), especially in the thirteenth century, pushed back the limit of the bishop's rule to the small river Morge, which, flowing from the Sanetsch Pass, joins the Rhone just below Sion. That was the boundary settled in 1384 (confirmed in 1392) between 'Episcopal Vallais' and 'Savoyard Vallais.' The bishops, as well as the great feudal nobles occupying various districts above Sion, had, however, to fight not merely against the House of Savoy, but also, from the fourteenth century onwards, with the free communities which were springing up in the uppermost reach of the Rhone valley. These are the so-called 'Zehnen' or 'dizains.' This name obviously suggests a derivation from the numeral 'ten,' and we may safely accept the opinion of the chief authority on Vallais history, the late Abbé Gremaud, that though the 'dizains' were but seven in number—Sion, 'the capital'; Sierre, 'the delightful'; Leuk, 'the strong'; Raron, 'the prudent'; Visp, 'the noble'; Brieg, 'the rich'; and Conches or Goms, 'the Catholic'—yet as that number and the limits of each were only fixed in the fifteenth century, the name they bear is a recollection of the time, before 1384, when two other districts, below Sion (Ardon-Chamoson and Martigny), were ceded to Savoy, while Granges, above Sion, by 1335 became separated from Sierre. These 'dizains' having in the fourteenth century subdued the feudal nobles (the two chief houses, those of La Tour-Châtillon or Turn, and Raron, were finally crushed in 1375 and in 1417 respectively), and practically secured the powers formerly exercised by the bishop, were soon ready for an advance (in the bishop's name) against Savoy. Hence it was that in 1475-6 they overran and occupied the Vallais from the Morge to St. Maurice, also securing in 1536 (confirmed in 1569) the territory (Monthey, etc.) on the left bank of the Rhone as far as the Lake of Geneva. These conquests of 1475-6 and 1536 formed the 'Lower Vallais,' which was ruled harshly by the bishop and the dizains of the Upper Vallais till 1798. Then both portions were united as the

Canton of Vallais in the Helvetic Republic. But in 1802 Napoleon, desiring to secure the Alpine passes, erected this Canton into the independent 'Rhodanic Republic,' finally, in 1810, annexing it, under the name of the 'Department of the Simplon,' to the French Empire. But in 1815 the Vallais became Swiss, and a full member of the Swiss Confederation, with which it had had relations of alliance, more or less close, since the early fifteenth century.

We have pointed out in the preceding chapter the very remarkable emigration from the German-speaking Upper Vallais which took place in the thirteenth century, and which resulted in the establishment of Vallaisan colonies in the Val Formazza (upper Tosa valley) as well as in the valleys at the S. and E. base of Monte Rosa, and in the far more distant regions round the sources of the Hinter Rhine, in the Calfeisen valley, and even at Davos. It was only natural that similar colonies should try to make their way over the range which shuts in the Vallais on the N., that is, to the territory of Berne, or, strictly speaking, that which was later to become Bernese.

Of the two great feudal families of the Upper Vallais, that of Raron (near Visp) is now known to have been a branch of the lords of Ringgenberg (near Interlaken), who ruled over the N. shore of the Lake of Brienz, but, as yet, it has not been possible to trace any political effects of this connection. It is far otherwise in the case of the second house, that of La Tour-Châtillon—Nieder Gestelen—or Turn (their ruined castle rises on a height a little to the W. of that whereon stood formerly that of the Raron family, burnt in 1417). The lord John of that house married (towards the end of the thirteenth century or the beginning of the fourteenth century) the heiress of the lords of Wädiswil, who brought with her as her dowry the lordship of Frutigen (this including also Kandersteg, Adelboden, and the Kien and Suld valleys), situated on the N. slope of the Alps. As the Turn family already held in the Vallais, among other estates, the valley of Lötschen and that of the upper Dala (or Leukerbad), a glance at a map will show that they were in possession of both slopes

of the Gemmi (7641 ft.) and Lötschen (8842 ft.) Passes across the range N. of the Vallais. John's father-in-law died in 1302, and he probably then entered upon his wife's heritage (he was already a married man in 1311). Now in 1306 we hear of certain men (nine in number) named 'Löscherre' (probably a form of 'Lötscher') who, together with a Grindelwald man and his son, purchased the piece of land at Brienz, on which they had settled, and the pasturages above the village. It is not stated how these men came to be at Brienz. But the whole matter is cleared up by a document dated 1346 by which Peter (John's son) sells to the monastery at Interlaken all his serfs, called 'die Lötscher,' who lived at Gimmelwald, Mürren, Lauterbrunnen and elsewhere in the parish of Gsteig (between Interlaken and Lauterbrunnen, the latter village having been in that parish till 1506, when it became a separate parish), as well as those settled near Brienz. In 1331, 1349, and 1409 we hear again of these Lötschen serfs at Lauterbrunnen. But by the last-named date the lordship of Frutigen had passed away from the Tour family, the last male member of which, after its downfall in 1375-6 in the Vallais, sold his Lauterbrunnen and Brienz serfs to the monastery of Interlaken in 1395, and his Frutigen lordship, in 1400, to the town of Berne. Thus ended this very curious episode in the history of one of the great feudal lordships on the N. slope of the Alps that shelter the Vallais. But it has left some permanent traces in this settlement at Lauterbrunnen, where the stream is still called Lütischine, and the dialect is not unlike that of the Vallais. It is even possible that some men from this colony came to settle in the neighbouring valley of Grindelwald (wherein these lines are written). There too the stream is named Lütischine, while we know from other sources that the Wädiswil lords had lands there, which may very well have passed with their heiress to John of La Tour-Châtillon, as the last mention of the Wädiswil family in connection with either the Lauterbrunnen or the Grindelwald valleys is found in 1326.

A more lasting Vallaisan possession on the N. slope of the

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Alps was the plain of Spitalmatte, with the inn or 'hospice' of Schwarenbach, which was decided to belong to Leukerbad as against Frutigen, in 1318, by a judgment of lord John of Turn, who was settling a dispute between his two bailiffs—*possibly* this bit was Vallaisan as far back as 1252. At the present day the Oberaar Alp (or pasture) on the Bernese side of the Grimsel Pass belongs to the men of Törbel, a village on the heights above Stalden, in the valley leading up to Zermatt. These seem to be the only two bits of land on the N. slope of the Alps which are held by the Vallais. Berne, however, came off worse, for it never secured permanently any part of the Vallais. The last raid by the Bernese was in 1419, in consequence of the attempt made by one of their burghers, the lord of Raron (after his expulsion from the Vallais, owing to his sympathies with Savoy as against the 'dizains'), to recover his estates in the Vallais. But this invasion failed, largely owing to the great defeat of the Bernese at the village of Ulrichen (one of the highest in the Upper Vallais, and close to the point where the old mule path over the Grimsel Pass reaches the level of the Rhone valley), which was chiefly due to the brave sacrifice of his life made by the Vallaisan leader, Thomas Riedi. One incident in this short campaign was a skirmish on the snows which cover the Lötschen Pass (8842 ft.), which is described by the Bernese chronicler, Justinger, with many picturesque touches; in particular, he tells us how the brave Bernese drove the Vallaisans from their vantage post on the very top of the pass, but had themselves to bivouac on the glacier, where they suffered much from the cold and rain (though it was August), though they had the supreme satisfaction next day of receiving the surrender of the Vallaisans, who appear to have suffered even more than their conquerors.

But save at times, the relations between Berne and the Vallais were friendly. The first alliance between the Bishop of Sion and Berne dates back to 1252; the connection was very close in the early fifteenth century, when both parties desired to get hold of the Val d'Ossola; and in 1475 Berne helped the Vallaisans to wrest the Lower Vallais from the Duke of Savoy.

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On the other hand, the Vallais looked also towards the Forest Cantons, with which, as early as 1416-17, it made a treaty of alliance.

It is hard to realise the fact, but so it is, that it was not till the end of the fourteenth century that the town of **Berne** got a footing in the Alps. When it entered the Confederation in 1353 it was simply an outpost against Savoy, which was pressing up towards it. But gradually, though steadily, Berne pushed back the Savoyards, first freeing Fribourg (1454), and then conquering the district of Aigle (1475) and the bishopric of Lausanne and the barony of Vaud (1536), lands which she never gave up till 1798, though in 1564 she had to restore the Chablais, which, too, had formed part of the conquests of 1536.

More interesting to us, however, is to trace out how Berne secured a footing in the Alpine regions to the S.E. of the town, which now bear the well-known name of the 'Bernese Oberland.'

The first step in this direction was the purchase (1334) of the imperial fief of *Hasle* (Meiringen, and the upper reach of the Aar valley) from the lords of Weissenburg, to whom the Emperor had mortgaged it in 1310-11, but as the mortgage was never redeemed by the Empire, Hasle remained Bernese. Next in point of date was the purchase of *Thun* in 1384 from the last representative of the cadet or Laufenburg line of the House of Habsburg, to whom it had come as part of the inheritance of the Counts of Kyburg. In 1386, during the Sempach war, Berne (now a member of the Swiss Confederation) seized the town of *Unterseen* (opposite Interlaken), which had been founded in 1280 by the lords of Eschenbach, but sold by them in 1306 to the Habsburgs. The ambitious town of Berne thus held the whole of the Aar valley above it, save the wide domains of the great house of Austin Canons at Interlaken (founded about 1133). The Eschenbachs had been its 'protectors' for nearly a century, when in 1306 they sold their Oberland estates to the Habsburgs, but the latter, though succeeding them in that office by 1318, were soon forced to give way before the claims of Berne.

It was not till 1528, however, that the wealthy monastery of *Interlaken* was secularised. Then all its domains passed into the hands of Berne, which thus secured the rest of the upper Aar valley, namely Interlaken, Brienz, Grindelwald, Lauterbrunnen, and the villages on the lakes of Brienz and Thun. Long before that date Berne had turned its attention to another of the main Oberland valleys, that of the *Simme* (which is always, till about 1700, and even now by the natives, named the 'Siebenthal,' not because of the seven glens which are said to make it up, but because of the seven springs which give rise to the Simme). In 1386 Berne occupied by force of arms its upper reach (Zweismimmen and Lenk), which had been bought in 1377 from its impecunious owners, in 1391 it purchased from its owner the lordship of Simmenegg (Boltigen and the middle reach of the valley), and by purchase also acquired in two bits (1439 and 1449) the lowest reach (Weissenburg, Wimmis, Erlenbach) of the same valley. Meanwhile the Bernese had not lost sight of the third of the great Oberland valleys, that of the Kander. This wide-branching valley, forming the lordship of *Frutigen* (and thus including Frutigen, Adelboden, Kandersteg, and the Kien valley, with the command of the Gemmi and the Lötschen Passes), was purchased in 1400 from the last of the lords of La Tour-Châtillon (of whom we spoke above), who had obtained it by inheritance early in the fourteenth century, but after his expulsion from the Vallais (1375) was getting rid of his Oberland possessions as well: in 1395 he had given to the monastery of Interlaken the advowson of Frutigen (till the parish of Adelboden was formed in 1433 the whole of the Kander valley was in the parish of Frutigen), and in the same year had sold to the monastery all his serfs, commonly called 'die Lötscher,' whether settled in the Lauterbrunnen valley or at Brienz. We have mentioned above the conquest (1475) of the district of Aigle and (1536) of the barony of *Vaud* by Berne. In 1555 it completed its acquisitions near the Oberland by dividing with Fribourg the domains of the last count of the *Gruyère*, whose prodigality had plunged him hopelessly into debt. Berne then obtained the whole of the Saane or Sarine valley, above

the Tine gorge (between Montbovon and Rossinière), but in 1798 it lost to the Canton du Léman of the Helvetic Republic (which in 1803 parted with it to the newly formed Canton of Vaud) the French-speaking portion of this valley, that is, the 'Pays d'En Haut' (Rossinière, Château d'Oex, and Rougemont): it still holds, however, the upper reach of the valley (Saanen or Gessenay), which is very easily gained, over the Saanenmöser Pass (4209 ft.), from the upper valley of the Simme, so that these two districts were conveniently near together.

Such is the story of the manner in which Berne became the capital of a wide mountain region.

(*b*) **Uri.**—In the whole of Switzerland there is no Canton (unless it be the Vallais) which is more securely fenced in by high mountains on all sides but one, than that of Uri, or the upper valley of the Reuss. But possibly because it was the first district within the limits of the future Swiss Confederation to obtain practical independence by being made immediately dependent on the Empire (853), possibly because the wild and barren nature of the region did not satisfy the yearnings of its pastoral inhabitants, we find that very early it made successful efforts to annex certain territories which properly lay in the lands held by their neighbours. We do not know the precise date at which the magnificent pastures of the Urnerboden (on the Glarus side of the Klausen Pass (6404 ft.) to the E. of Altdorf) were occupied by the men of Uri. But it is certain that, before the foundation of the Benedictine abbey of Engelberg (about 1120) the pastures of the Blacken Alp, on the Engelberg side of the Surenen Pass (7563 ft.), were in the hands of the Uri men, who, in the thirteenth century, pushed their limits a good way farther down the valley. Hence the visitor to Engelberg (now in Obwalden) is considerably surprised at discovering that the frontier of Uri begins about one hour's walk up the valley. He would be even more surprised to learn (but that he generally does not) that the frontier of Nidwalden starts a little below Grafenort, though one might at first have imagined that the whole valley of the Engel-

berger Aa *must* belong to the Nidwalden division of the Canton of Unterwalden, since Stans, its capital, is near the spot where it flows into the Lake of Lucerne. *This* frontier is, however, due to causes quite different from those which obtained in the upper reach of the Aa valley. In 1798 the Nidwalden men valiantly resisted the French army, so that when the Helvetic Republic was set up, the territory of the abbats of Engelberg (hitherto independent) was annexed to Obwalden as a punishment for the Nidwaldners. The latter got the Engelberg region in 1803, but lost it finally in 1816, for in 1815 they had strongly resisted the introduction of the new régime of 1815.

More important was the incorporation of the Ursern valley with Uri. This glen, well known to summer travellers who visit Andermatt and one of the three passes (the Furka, the St. Gotthard, and the Oberalp) which give access to it, depended from very early times on the Benedictine abbey of Disentis (founded about 614 by the Irish monk, Sigisbert, a disciple of St. Columban), across the Oberalp Pass and at the head of the Vorder Rhine valley. It was later an imperial fief, which till 1283 was in the hands of the Counts of Rapperswil, and from 1299 to 1389 (though before that date their rights had practically lapsed) in those of the Habsburgers. The abbey thenceforward exercised all jurisdiction therein, as it had long been the owner of lands, etc., in the valley. But the domination of Disentis in Ursern was naturally disagreeable to the men of Uri, for they were thus shut out from the route to the Vallais over the Furka, and from the much-coveted Val Leventina, in the Milanese, over the St. Gotthard. Hence in 1410 Uri made a permanent alliance with Ursern (the last traces of this more or less dependent condition did not disappear till the adoption of the new cantonal constitution of 1888), while in 1649 the Ursern men bought up the remaining manorial rights of the abbey. Thus Uri secured an open gate both towards the Milanese and towards the Vallais. One natural consequence of this closer connection between Uri and Ursern was that Ursern gradually gave up the Romansch language which had long (though Teutonic traces appear as early as 1309) been spoken by its inhabitants, and adopted the High

German dialect spoken in Uri. But the local names in Ursern (originally called Orsera) still retain traces of their Romansch descent, though some persons, at first sight, might attribute them to the Italian influence flowing across the St. Gotthard.

(c) **The Grisons.**—It is a remarkable fact that the southernmost or mountainous portion of the old Roman province of Rætia preserved for a very long series of years the traces of Roman civilisation. It included (roughly speaking) the modern area now comprised in the Canton of the Grisons and in the Vorarlberg (the Tyrol belonged to the Bavarians), and its temporal rulers (bearing the Roman title 'Præses'), so late as the seventh and eighth centuries A.D., were the Bishops of Coire, who are first mentioned about 452. This region seems also to have retained to an extraordinary degree its connection with Italy. But early in the ninth century it was definitively cut off from Italy and made a part of Germany. About 806 Charles the Great erected Rætia into a duchy, which before 847 was transferred from the ecclesiastical province of Milan to that of Mayence (Mainz). In 916 this duchy was united with that of Alamannia, but, as before, was practically divided into an upper portion and a lower, ruled by great feudal nobles, whose power grew as that of the central authority diminished. But as early as 831 the Bishop of Coire secured from the Emperor Louis the Pious a charter of exemption from the jurisdiction (save in criminal matters) of these counts, similar privileges being then granted also to the convent of Pfäfers, and sometime after (1048) to that of Disentis. These three great ecclesiastical exempt jurisdictions considerably stemmed the advance of the feudal nobles, especially when in the tenth century the Bishop of Coire obtained many fresh privileges and new domains (including the Val Bregaglia in 960) from the Emperor Otto I. and his successors. As time went on, the Bishop of Coire, with his vast power and enormous domains (which were, however, smaller than the region over which his purely spiritual jurisdiction extended),

became a standing danger to his 'men' and to the neighbouring nobles. This danger was increased by the Austrian leanings of Bishop Hartmann (1388-1416) and his predecessors, for the House of Habsburg in 1363 acquired the county of Tyrol, and in 1375 first set foot in the Vorarlberg. Hence in 1367 the 'League of God's House' was founded by the bishop's subjects (the city of Coire, the Domleschg or Thusis region, the Oberhalbstein, towards the Julier Pass, the whole Engadine, and the Val Bregaglia), the bishop becoming its head in 1392. This was followed in 1395 by the 'Upper League,' often wrongly called the 'Grey League,' as it took its name not from the grey coats of the leaguers, but from the number of feudal counts or 'Grafen' (graven) who entered it: this League comprised the exempt jurisdiction of the abbey of Disentis, and the nobles of the Vorder Rhine valley, and by 1424 had greatly increased its limits. In 1436 the last Count of Toggenburg died, and at once many of his subjects formed the 'League of the Ten Jurisdictions' (Davos, the Prättigau or Landquart valley, and the Schanfigg valley), though this League was long exposed to strong Austrian pressure. In the course of the fifteenth century these Three Leagues drew nearer to each other in order to face a common danger (affording a remarkable parallel to the history of the rise of the Swiss Confederation itself). In 1497 the 'Upper League,' and next year the 'God's House League,' became 'allies' of the seven most easterly of the ten members of the Swiss Confederation, though the 'Ten Jurisdictions' were then being rapidly seized by Austria, so that it could not join in these alliances. Of course this accession of strength greatly improved the position of the two Leagues, but it also brought to a head the troubles which had long been simmering between them and the House of Austria. During many years the Counts of the Tyrol had been encroaching on the rights of the Bishop of Coire (based on donations in the ninth and tenth centuries by the Emperors) in three districts—the Lower Engadine, the Vintschgau or upper valley of the Adige, and the Münster valley, a tributary glen of the Vintschgau. By 1282 the Lower Engadine was recognised by

the bishop as being in Tyrol, and to a certain extent the Vintschgau also. Of course, when in 1363 the Habsburgers succeeded to the Tyrol, they were able to press even harder on the infant Leagues. Finally, the Habsburgers, in the person of the Emperor Maximilian (who had received Tyrol in 1490 from the last representative of the cadet branch of his house), attacked the Münster valley in May 1499, desiring to force the Rætian Leagues and also the Swiss Confederation to recognise the jurisdiction of the newly created Imperial Chamber as the Supreme Imperial Tribunal. But this enterprise was brought to nought by the great Swiss and Rætian victory in the Calven gorge (in the lower bit of the Münster valley), and by the Peace of Bâle (Sept. 1499) the Emperor had to recognise that the Swiss and Rætian Leagues were practically independent of the Empire, and not subject to the Imperial Chamber. But though this treaty settled the political matters at issue, the rights of the Habsburgers as lords of the manor in the contested districts gave rise to many and irritating quarrels. Hence, when by the Treaty of Westphalia (1648) the *legal* independence of the Swiss and Rætian Leagues was formally acknowledged by the Emperor, it seemed a favourable opportunity for settling the other claims as well. Thus the Austrian rights in the 'Ten Jurisdictions' were bought up in 1649-1652, and those in the Lower Engadine in 1652, but on the other hand, the Bishop of Coire formally renounced in 1665 his claims in the Vintschgau (which had been practically lost since 1609). All rights of the Rætian Leagues in the Münster valley were practically lost after 1526 (when the temporal jurisdiction of the Bishop of Coire in the Rætian Leagues was abolished), though after protracted negotiations they succeeded formally in 1762 (practically in 1748) in purchasing the upper portion (above Taufers) from Austria, to which it had been sold (with Taufers) in 1734 by the Bishop of Coire (a Tyrolese by birth). In this way the Swiss regained the command of the Umbrail Pass.

Thus while the Rætian Leagues, in the case of these contested territories, obtained the Prättigau, Davos, the Lower Engadine, and a part of the Münster valley, they had to give up

the Vintschgau, which, after all, is within the natural limits of the Tyrol, as the Adige valley is physically quite distinct from that of the upper Inn or the Engadine.

In 1799-1801 the Three Leagues of Rætia (which, in 1797, as mentioned above, had lost their Italian bailiwicks) became the Canton of Rætia in the Helvetic Republic, while in 1803, under the name of the Canton of the Grisons or Graubünden, they were admitted full members of the reconstituted Swiss Confederation.

But it was only in the early years of the nineteenth century that two Austrian islands or 'enclaves' in Rætia became Swiss—those of Tarasp and Rhäzuns.

Tarasp, in the Lower Engadine, had a castle which dominates Schuls in the main valley of the Inn, and so is of strategical importance. It passed from its local lords into the possession of the Bishops of Coire in the twelfth century, but they gave it at once to a family which in 1239 sold it to the Count of Tyrol (that county was not yet in the hands of the Habsburgers). He bestowed it as a fief on the powerful Matsch family, from which Sigismund of Austria bought it in 1464. After the Lower Engadine had been sold to the Rætian Leagues in 1652, the Habsburgers alienated (1687) the lordship of Tarasp to the Dietrichstein family, which held it till 1801. Then it was ceded by Austria at the Peace of Lunéville to France, which in 1803 gave it to the Swiss Confederation, from which it passed, in 1809, to the Canton of the Grisons. Thus after passing through many hands Tarasp became at last Swiss, but it is no doubt owing to the fact that it was for so long an outpost of Tyrol that the parish is now the only one in the Lower Engadine that is mainly inhabited by Romanists.

Rhäsuns had an even more singular history. The castle stands near the junction of the Hinter and of the Vorder Rhine, and a little S.W. of Coire, so that it is very important from the military point of view. We hear of it already in 960, though its lords are first mentioned in 1139. In 1251 the family appears under the name of Brun, and made it the centre of its very extensive possessions, acquired by purchase in the

neighbourhood. The direct male line of the family became extinct in 1458, when Rhäzuns passed to the Count of Zollern, the nephew of the last lord. The new owners, however, mortgaged it in 1473 (or 1490) to the lord of Marmels (around Molins, on the way to the Julier Pass), who exchanged it in 1497 with Maximilian of Austria for another lordship in Swabia, though the mortgage was not bought up by the Habsburgers till 1549. But hardly had they finally secured Rhäzuns when in 1558 they mortgaged the lordship in their turn to the great Engadine family of Planta, and in 1586 sold it outright to that family, reserving the option of repurchasing it at some future date. This option was exercised by the Emperor Leopold I. in 1695, when the lordship became definitively Austrian, and so a great eyesore to the Rätian Leagues. But by the disastrous Peace of Presburg (1805) Napoleon compelled Austria to cede Rhäzuns to his ally Bavaria, though in 1809 Bavaria was forced to hand it over to France. Finally, the Congress of Vienna (1815) made over our lordship to the restored Canton of the Grisons, which still holds it. It was only actually handed over in 1819, when the fear of Austria and of the Habsburgers passed away for ever.

Thus by the irony of fate these two Austrian 'enclaves' passed through the hands of France before they became Swiss. Rhäzuns, too, is singular in this respect, that it never belonged to the Rätian Leagues at all, though situated nearly on the boundary between the 'Upper League' and the 'League of God's House.'

3. THE EASTERN ALPS

(FROM THE RESCHEN SCHEIDECK TO THE RADSTÄDTER TAUERN)

(i) The political history of this region of the Alps is all but entirely made up of the gradual absorption by the powerful family of the Habsburgers of many smaller states and principalities, while but little attention need be paid to the varying fortunes

of the House of Bavaria, whose domains lay N.W. of those of the Habsburgers. To us the interesting point of this history is that the Habsburgers secured *both* slopes of all the great mountain passes in the Eastern Alps, save the W. slope of the Tonale and the Stelvio, which only became Italian in 1859 (Austria had held them from 1814 onwards), and the S. slope of the Plöcken or Monte Croce Pass (held from 1797-1805 and 1814-1866), lost in 1866 to Italy.

In tracing out the rise and growth of the House of Habsburg we have to distinguish between at least three phases, which may be roughly ticketed as the 'Swiss Phase,' the 'Austrian Phase,' and the 'Venetian Phase,' these terms simply serving to bring out the characteristic feature of each period in the story (so far as regards the Alps) of this, the greatest of still reigning Continental royal dynasties.

A.—THE 'SWISS PHASE'

Of course the Habsburgers never *ruled* (though they remained landowners) in any portion of the Swiss Confederation, after it had become Swiss. The Habsburgers 'created' the League because it came into being to resist them, but, after any particular district had become a member of the Confederation, the Habsburgers retained no political rights over it, though they might continue to be lords of the manor and landowners therein. It is desirable to grasp this state of things very clearly, for there was a time when the Habsburgers ruled in certain regions, now included within the boundaries of Switzerland, but that time was before they had entered on the Austrian (or more strictly the Tyrolese) phase of their career.

The Habsburgers began in a small way, first in Upper Alsace or the Sundgau (on the left bank of the Rhine), and gradually extended their power to the Black Forest. About 1020 one of the members of the family, Werner, Bishop of Strassburg, built the castle of Habsburg, on a commanding height above the lower valley of the Aar, and not very far from the point at which that mightiest of Swiss rivers is swollen first by the

Reuss and soon after by the Limmat or Linth. This castle-building shows that the family must have then struck root in the Aargau. In 1124 its head appears to be (as he certainly is in 1135) the ruler (landgrave) of Upper Alsace, though he then takes his title of count (which occurs first in 1114) not from the Sundgau, but from his Argovian castle of Habsburg. In 1173, on the extinction of the Counts of Lenzburg (whose castle rises a little to the S. of that of Habsburg), our family succeeded them in the countship of the Zürichgau. But it was not till 1264 that the inheritance of the Lenzburgs in lands, etc., came (by a lucky marriage, the first recorded of many such) to the Habsburgers, for it had previously to pass through the hands of the Counts of Kyburg (the castle of this name is S. of Winterthur). This huge accession of wealth raised the Habsburgers to the first rank among the various feudal lordlings who were then struggling for supremacy in what now form the northern and central portions of Switzerland. This position, and the soldier-like qualities of the then head of the house, Rudolf, helped, with other causes, to bring about his election as Emperor in 1273, while in 1282 the Habsburgers for the first time came into possession of Austria. No doubt such further accessions of power and dignity induced Rudolf to attempt to increase his territories in what may be called his native land—what was later to be central Switzerland. In a preceding section we have noted how his purchase of Lucerne (April 16, 1291) was followed by his death (July 15) and the formation of the first Everlasting League (August 1). It was high time indeed that some stop should be put to the rapid and ever-advancing progress of the Habsburgers. A glance at an historical atlas will show that about 1315 the Habsburgers ruled over a huge band of land in Central Switzerland, which extended from the W. shore of the Lake of Constance, in a S.W. direction, leaving the imperial city Zürich on the E., and that of Berne on the W., but taking in Lucerne, as well as the Entlebuch to its S.; it included, besides, Thun and the upper valley of the Aar (save Hasle), that is, the chief valleys of the Bernese Oberland, which really belonged to the house of Austin Canons of Inter-

laken, of which the Habsburgers became 'protectors' in 1318 for a few years, when Berne succeeded them. It is in one of these valleys, that of Grindelwald, that these lines are being written on a bit of land, named Dürrenberg, which belonged to the Habsburgers as late as 1331, when they parted with it to the Canons. But before that date the Habsburger power in Central Switzerland had begun to wane. The battle of Morgarten (1315) secured the Three Lands of Uri, Schwyz, and Unterwalden from any further political dangers at the hands of the Habsburgers, while in 1332 Lucerne, on its entrance into the League (though the Entlebuch was only bought in 1405 by Lucerne from the Habsburgers), was lost to the family. In 1384 Thun and Burgdorf were purchased by Berne from the cadet line of the House of Habsburg, and in 1386 the victory of Sempach struck a further blow at Habsburg power, while in 1388 that of Näfels secured Glarus to the Confederation, as well as Zug (both had entered it in 1352). The Aargau (including the ancestral castle) was lost in 1415 to the Confederation as a whole or to Berne alone, in 1452 the county of Kyburg was seized by Zürich, in 1458 that of Rapperswil successfully sought the protection (definitively given in 1464) of four members of the Confederation, in 1460 the rich plains of the Thurgau were wrested by the Confederation from the once powerful family, and finally in 1467 the town of Winterthur was sold to Zürich. Of their ancient possessions in what is now Switzerland the Habsburgs retained the Frick valley (S. of Laufenburg, on the Rhine) till 1801, when it was given to France, which ceded it in 1802 to Switzerland. We have noted above the fortunes of the two islands (acquired by the Habsburgers in 1464 and 1497 respectively) of Tarasp and Rhäzuns in the Grisons, as well as the later sales of the Prättigau (1649-1652) and the Lower Engadine (1652), though these properly belonged to the 'Austrian' phase of the Habsburgers.

Thus by 1500 the Habsburgers had practically passed out of and beyond their 'Swiss' phase, their course having since 1273 been set eastwards from their old home, a curious parallel to the story of the House of Savoy. But, as we shall see

presently, the acquisition of the Tyrol (1363) and of the Vorarlberg (1375-1394) seems to indicate an advance back towards the west (that is, towards the Swiss Confederation), though this advance is but faintly outlined, and was checked for good in 1499 by the battle of the Calven gorge.

B.—THE 'AUSTRIAN PHASE'

In order to explain how the Habsburgers got 'Austria' it is necessary to consider, as briefly as possible, the pre-Habsburger history of the Alpine lands which are roughly included under the term of 'Austria.'

In 788 Charles the Great incorporated the territory of the Baioarii into his Empire. It later formed part of the East Frankish kingdom, but early in the tenth century we find that it was governed by a set of native and most unruly dukes, who were practically sovereign, and at best nominally subject to the German kings. Even Otto I., powerful as he was, did not venture to do more than hand over (948) the duchy to his own brother, whom he had married to a daughter of the native duke. But troubles still prevailed in the duchy, first between the new dynasty and the old one, then between the new dynasty (which became more Irish than the Irish) and the German kings. Finally, Otto II., in and about 976, introduced great changes as to the Bavarian duchy and its holders, for it had become very unwieldy, as it extended from the Lech to the Leitha, E. of Vienna, thus including practically the whole of the Eastern Alps. The duchy itself was given to Otto's nephew and friend, Otto, Duke of Swabia. But this new duchy had been shorn of its fair proportions by the creation of a set of 'marks' or 'marchlands' (border-lands) on the N., the E., and the S. We need not trouble ourselves here with the North Mark, which has nothing to do with the Alps, and was an outpost against the Bohemians. More important to us is the erection of Carinthia, or the South Mark, into a separate duchy, to which was annexed the Mark of Verona, that had belonged to the great Bavarian duchy since 952, when it had been taken from the kingdom of

Italy, after the defeat of King Berengar II. Further, the lands to the E. of the old Bavarian duchy, which had been won from the Magyars in 955 by the battle on the Lech, were separated from the Bavarian duchy, and made into the East Mark—the future 'Austria' in the strict sense. These two new 'Marks' or outposts against the Magyars on the E. were put (976) by Otto into safe hands, Carinthia and Verona going to Henry, the son of a former Bavarian duke, and husband of Willetrud, Otto II.'s first cousin, while the East Mark was committed to the charge of Leopold of Babenberg, brother of the Berchtold who ruled in the North Mark (the two brothers being special favourites of Otto II.). The diminished duchy of Bavaria thus stretched, from 976 onwards, only from the Lech to the sources of the Enns and of the Mur; its mountainous districts (which alone concern us here) thus included the whole of the future Tyrol and Salzburg, as well as the E. bit of the Bavarian Highlands.

Now, in course of time, all these districts (save the North Mark and the Bavarian Highlands) came into the hands of the Habsburgers. In order to make a rather complicated series of events as clear as possible to my readers, it will be most convenient to consider them briefly under three heads—first, the *East Mark*, as that gave the name of House of Austria to the Habsburgers; then the *South Mark*, or Carinthia (with its satellites of Carniola and Styria); and finally the *Tyrolese, or S. portion* of the Bavarian duchy (as constituted in 976), which will lead us on naturally to the story of the Bavarian Highlands, or the N. half of that reconstituted duchy.

(a) **The East Mark, or Austria** (Oesterreich).—Leopold of Babenberg had already, in 974, received from Otto II. the government of the East Mark, but in 976 he seems to have obtained increased power, and independence of the duchy of Bavaria, though some writers hold that for yet a while the Bavarian Dukes had some sort of undefined supremacy over the East Mark. This, however, disappeared in course of time, and the Babenberg dynasty (which takes its name from a castle near

Bamberg, the name of that town being a mere variation of that of the castle) ruled in the East Mark, with varying fortunes, till the extinction of the male line in 1246. It seems odd nowadays to associate with Austria any name other than that of the Habsburgers, but they, with their usual good fortune, simply entered upon other men's labours, gaining all the profit and advantage, without much trouble to themselves. In 1156 Austria was raised to the rank of a duchy (it became an arch-duchy only long afterwards, in 1453), while in 1192 (by an arrangement made in 1186) the Mark of *Styria* (Steiermark)—which in 1035 had been cut off from Carinthia, and in 1056 had come to the Counts of Steier, or Steyr, a castle near the junction of the river of that name with the Enns—was inherited by the Babenbergers on the extinction of the male line of its rulers, who had assumed the title of duke in 1180. After the failure of the male line of the Babenbergers in 1246, a time of confusion followed, as the last duke left only a sister. The Emperor Frederick II. ruled in Austria from 1246 till his death at the close of 1250, when the land was occupied (1251) by the Slavonic prince, Ottakar, who, in 1253, succeeded his father as king of Bohemia, and became the second husband, in 1252 (her first had been Frederick's son, Henry), of Margaret, the only surviving sister of the last Babenberger. It was not, however, till 1259-1260 that Ottakar was able to wrest Styria (save a bit in its N. region, the Püttner Mark, which had been got in 1254 from Hungary by Austria) from Bela IV., the Magyar king of Hungary. In 1269 Ottakar, by virtue of an arrangement, succeeded, on the extinction of the male line of its dukes, to the duchy of *Carinthia* (Kärnthen), as well as to the county of *Carniola* (Krain), which, practically cut off from Carinthia about 1040, had had to struggle for its independence against the Patriarchs of Aquileia, and the Bishops of Brixen and Freising: the last duke-count (who had won the day against the Patriarchs in 1261 and died in 1269) had married the divorced wife of the last of the Babenbergers, and had instituted Ottakar as his heir.

Thus Ottakar had got into his hands a number of provinces

(Austria in 1251, Styria in 1259-1260, Carinthia and Carniola in 1269), while in 1253 he had inherited the kingdom of Bohemia as well as Moravia from his father. His position was therefore very threatening to the German lands to the W., for though his dominions lay between them and the Magyar kingdom of Hungary, yet Ottakar was the head of a Slavonic power, and so was a menace to Western Europe. The fear of this powerful monarch was one of the main reasons which brought about the election of Rudolf of Habsburg in 1273 to the Empire, and this choice was soon justified. Already in 1276 Ottakar (who had been Rudolf's rival for the imperial crown in 1273) was forced to renounce his domains of Austria, Styria, Carinthia, and Carniola in favour of Rudolf, and to consent to hold Bohemia and Moravia as fiefs from the Empire. But Ottakar could not bring himself to give up finally his splendid realm without a further struggle, in which, however, he was defeated in the battle of the Marchfeld, near Vienna (1278), losing his life as well as his dominions. He had thus prepared the way for the Habsburgs, who, by this victory, became the practical as well as nominal kings of Germany, to which, too, they had brought a vast accession of territory, wrung from the advancing Slavonic race, though henceforth to remain both German and Austrian. But Rudolf did not long keep these conquered lands in his own hands, for in 1282 he invested his two sons (in 1283 he gave all to the elder) with the lands he had won for Germany. However, in order to satisfy a powerful neighbour (of whom we shall have to speak again presently), Meinhard II., Count of the Tyrol, who had helped much to defeat Ottakar, and whose daughter, Elisabeth, had in 1276 married Rudolf's son and successor, Albert, Rudolf had in 1286 to give him Carinthia and Carniola, stipulating, however, that should Meinhard's male posterity ever fail, the Habsburgs were to have the right of succession. This event took place in 1335, on the death of Henry, Meinhard's son, so that Albert II., Albert of Habsburg's son (he himself had been murdered in 1308) then added these lands permanently to the Habsburgs' inheritance of Austria and Styria.

(b) **The South Mark, or Carinthia.**—It was simpler to speak of the fortunes of this district from 1269 to 1335 in the preceding section, as during that period it was becoming 'Austrian' or part of the Habsburger inheritance. But in order to complete our account we must sketch briefly the history of this South Mark from 976 to 1269.

In 976, as we have seen, this Mark, raised to the rank of a duchy and united with the Mark of Verona, was cut off from the old duchy of Bavaria, though it was twice reunited with it for short intervals before 1002, when it was finally separated from it. It passed through many hands in the course of the eleventh century, mainly those of local rulers, save the Emperor Conrad II. (1036-9). But during that century it had been cut short in many directions. Styria had parted off in 1035, and Carniola about 1040, while by the time of the death of Otto II. (983) the temporal powers of the Patriarchs of Aquileia had so increased that they had become masters of the E. portion (the history of the W. portion will be sketched below under Section C., The 'Venetian Phase'), which gradually acquired the name of Friuli. Hence the name of Markgraf of Verona was a mere empty title when in 1061 it came to the House of Zähringen, and from it to that of Baden. Meanwhile the duchy of Carinthia itself had passed through the local dynasties of Eppenstein (1012-1122) and Sponheim (1122-1269). By 1261 the last duke had established his independence as against the Patriarchs of Aquileia, and on his death (1269) his dominions (which included Carniola by virtue of his marriage with the widow of the last of the Babenbergers, d. 1246), passed by virtue of his testament to Ottakar, king of Bohemia, whence they came (as above noted) first in 1278, then 1282-6, and finally in 1335 to the Habsburgers.

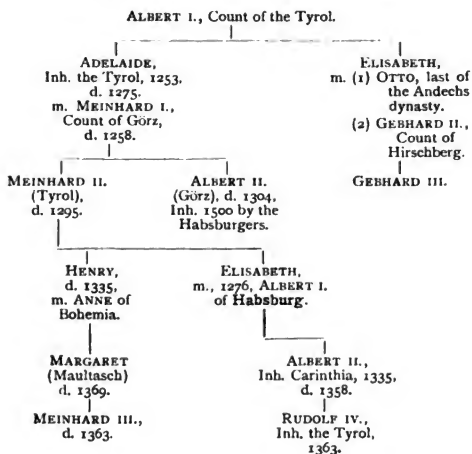
(c) **The Tyrol.**—The half-ruined castle of Tyrol still stands on the heights to the N.W. of Meran, in the upper valley of the Adige or the Vintschgau. But it is not till about 1140 that we

first hear of 'a count of the Tyrol.' These counts became the heirs of other feudal lords the power of which had gradually grown up in the S. portion of the Bavarian duchy of 976. In 1027 the Emperor Conrad II. took a step which decided the future fortunes of this region—he granted all temporal powers in the district S. of the Brenner Pass, in the neighbourhood of Botzen, and in the Vintschgau (that is, in the whole of the upper Adige valley from a short distance below the town of Trent), to the Bishop of Trent (the see dates from the early fifth century), who thus obtained a very great position, while practically his wide lands then ceased to be Italian, and became part of the German kingdom. At the same date Conrad conferred similar temporal jurisdiction, in the Eisack valley (just S. of the Brenner Pass) and in the Inn valley (N. of that pass), on the Bishop of Brixen (the see had been founded at the end of the eighth century at Säben, on the cliffs above the Eisack valley, some way below the town of Brixen, to which it was transferred about 992). These two bishops thus kept guard over the great highway of the Brenner Pass, by far the most important in the Eastern Alps. But the bishops themselves could not exercise in person the extensive temporal rights which had been conferred upon them. They sought lay nobles to whom to intrust their responsibilities. For the N. portion of his realm the Bishop of Trent selected his 'protectors,' the Counts of the Tyrol (first mentioned in 1140), to whom also the Bishop of Brixen committed the Eisack valley; the Bishop of Brixen chose the Count of Andechs (a castle S.W. of Munich), who was the 'protector' of the bishopric, and besides already possessed many estates in the region subject to the bishop. The family of Andechs held, in particular, the Inn valley, just above Innsbruck, and in 1152 received from the bishop that portion of the same valley which is around Innsbruck. Through an heiress they obtained about 1170 the marquessate of Istria, while their ever-increasing lands in those parts won them about 1180 the dignity of Dukes of Merania (that is, of the coast-land, near the sea or 'mare,' the name having nothing to do with the town of Meran). The House of Andechs became extinct in the male line in 1248, when its Inn

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and Eisack valley fiefs reverted to the Bishop of Brixen. Now the last of the Andechs line had married Elisabeth, the younger daughter of Albert I., Count of the Tyrol, and so naturally the bishop granted to the Count of the Tyrol the fiefs which had just fallen vacant. Until then, and for some time yet, there is not the slightest connection between the Tyrol and the Habsburgers,

THE TYROL AND THE HABSBURGERS



though their turn is coming soon. Elisabeth's elder sister, Adelaide, had married Meinhard I., Count of Görz, a land far away to the S., and a little N. of Trieste and Aquileia. Adelaide brought (1253) the Tyrol to her husband (as she and her sister were the co-heiresses of their father), who also obtained in 1284 the Inn valley from the sole child of Elisabeth. On the death of Meinhard I. (1258) his two sons divided his territories ;

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the elder, Meinhard II. (who in 1284 obtained the Inn valley from the only child of Elisabeth, and in 1286 the duchy of Carinthia and county of Carniola from Rudolf of Habsburg, as a reward for help at the battle of the Marchfeld in 1278 against Ottakar, king of Bohemia), took the Tyrol; while his younger brother, Albert, succeeded to the county of Görz (as we shall see later, on the failure of this Albert's line, Görz came to the heirs of the elder line, in 1500, and those heirs were the Habsburgers). Now Meinhard II. had two children with whom we have to do. The son, Henry, married Anne, the granddaughter of Ottakar II., and so became king of Bohemia for a short time (1307-1310), while Meinhard's daughter, Elisabeth, married Albert of Habsburg (Rudolf's son). Henry's only child was Margaret, known as 'Margaret Pocket Mouth' (Maultasch), who succeeded her father on his death (1335) in the county of the Tyrol, while the duchy of Carinthia passed to the Habsburgers, in the person of Albert's son, who was Margaret's first cousin. Margaret had two husbands, but only a single child (Meinhard III.), on whose death in 1363 (after a reign of two years) a struggle seemed imminent for the succession to his domains. But only two weeks after her son's death, Margaret solemnly promised the Habsburgers (to whom, in 1359, she had bequeathed her domains, in case of the extinction of her line) that they should have her realms at her death, and that till then she would reign in their name. She at the same time ordered her subjects to swear allegiance to the Habsburgers. But they still feared that they might lose the splendid prize. Hence later in 1363 they put pressure on Margaret to abdicate, and (in return for the cession of certain places for the rest of her life, and a pension) she gave way to their importunities. She retired to Vienna, and there ended her days in 1369, at the age of 51 years.

One can easily understand the longing of the Habsburgers for the Tyrol. Its topographical position astride the Alps, and commanding both sides of the principal pass in the region, gave to its masters an enormous influence, and enabled them to block, at will, the direct route from Germany to Italy. Of

Margaret's two husbands the former had belonged to the powerful House of Luxemburg, which held the Empire from 1312 to 1437, with two short breaks (1328-1347 and 1400-1410), as well as Bohemia from 1310 to 1457: the second was a member of a not less powerful Bavarian house, which held the Empire from 1328 to 1347 (in the person of Margaret's father-in-law), and whose domains were uncomfortably near those of the Habsburgs. The possession of the Tyrol also enabled the Habsburgs to make an attempt to advance back towards the W. towards their original homes. That scheme was (as we have noted above) stopped in 1499 by the Swiss victory at the battle of the Calven gorge. But it had been more dangerous than might appear at first sight, for in 1375 the Habsburgs had bought Feldkirch in the Rhine valley from the Counts of Montfort, and in 1394 Bludenz and the Montafon valley from the Counts of Werdenberg, while in 1451 and 1523 they acquired the county of Bregenz from the Werdenberg family. All these acquisitions (which are commonly grouped under the name of the Vorarlberg) meant the command of the Arlberg Pass, leading directly from Innsbruck to the Rhine valley at Feldkirch, thus at once threatening St. Gall, Appenzell, and Coire. Here the danger to the Swiss Confederation and its allies was averted in 1405 by the glorious victory of the Stoss (in Appenzell, on the heights by which one goes from Altstätten in the Rhine valley to Appenzell and St. Gall): in 1411 Appenzell, and in 1454 St. Gall, were received as 'allies' of the Swiss Confederation; the Thurgau (to their N.W.) conquered from the Habsburgs in 1460, and Winterthur acquired in 1467. Towards the S. of Feldkirch the situation was secured (as we have already shown) by the gradual formation of the Three Rætian Leagues (1367, 1395, and 1436), while the purchase of all remaining Habsburger rights in the Prättigau (just S. of the Montafon valley) in 1649-1652, and in the Lower Engadine in 1652, made the Swiss Confederation quite secure against its old foe. He had long pressed it on the N. and the E., and had renewed his attacks (think of Morgarten in 1315, of Sempach in 1386, and of Näfels in 1388) after he had vastly increased

his power by the acquisition of these wide lands of 'Austria'—namely Austria proper, Styria, Carinthia, Carniola, and the Tyrol, while he had held the imperial crown from 1273 onwards, save between 1308 and 1438.

More success attended the efforts of the Habsburgers to establish their sole rule in the Tyrol. These took place chiefly in the reign of Maximilian (Emperor from 1493 to 1519, and grandfather of Charles v.). In 1500 he succeeded to the county of Görz by virtue of an arrangement made with the last counts, his kinsmen. This inheritance meant far more than the mere addition of that county to his domains, for the counts held also the whole of the Pusterthal from Lienz to near the Eisack valley, above Brixen. Now the Pusterthal offers the direct route from Carinthia to the Brenner road, and it commands the Ampezzo Pass leading S. from Toblach towards Venice. Hence the possession of this region by another family (even if connected by ties of blood) was very inconvenient for the Habsburgers, who, without it, were debarred from all communications between Carinthia and the Brenner route, save by a huge détour towards N. round the snowy crest of the Tauern and Zillertal Alps, or by another, even more roundabout, to the S. of the Dolomites. These two lofty ranges enclose the Pusterthal on the N. and the S. respectively, and thus enhance its importance as the great highway from Carinthia, Carniola, and Styria, to the true and original Tyrol, to the middle Inn valley, and to the upper Adige and Eisack valleys.

In 1505 (formally in 1507) Maximilian made other acquisitions in the Tyrol, this time from the House of Bavaria, which had been torn by a disputed succession. These included the fortress and the lordship of Kufstein, as well as the lordships of Kitzbühel, and of Rattenberg, with the Bavarian portion of the Zillertal. These districts had belonged to Margaret Maultasch in right of her second husband, and had been handed over to her on her abdication, with reversion to the House of Bavaria. Hence Maximilian was only too eager to secure them, after they had once so narrowly missed his family, for, lying to the N.E. and E. of Innsbruck, they command the exit from Innsbruck

towards the plains. *Now* the Habsburgers had the whole of the routes over the Brenner and over the Arlberg in their own hands, while the Tyrolese frontier towards the N.E. was also well secured against those troublesome Bavarian neighbours.

As we have noted more than once, Maximilian was unsuccessful (1499) in his attempt to extend the power of his house towards the W. But to his successes towards the E. (1500) and the N.E. (1505) he added others to the S., which naturally carry us on to the third great phase through which the history of the Habsburgers in the Alps has passed.

C.—THE 'VENETIAN PHASE'

The old Mark of Verona, which in 952 had been separated from Italy in order to be united to the duchy of Bavaria, and in 976 was transferred to that of Carinthia, had by the eleventh century been shorn of its fair proportions (it originally stretched from the Lake of Garda to the Isonzo). On the W. the bishopric of Trent had in 1027 been cut off from Italy to form an ecclesiastical principality, which was politically German, while on the E. the Patriarch of Aquileia had succeeded in establishing his power over Friuli as a temporal ruler. The central portion of the old Mark therefore was all that remained (its S. bit gradually took the more modest name of March of Treviso), and practically again became a part of Italy and no longer of Germany. The Alpine portions of this remnant of the old Mark of Verona passed, after the final break-up of the Empire in 1250, into the possession of the Scala family of Verona, which extended their rule to Vicenza, Belluno, Feltre, etc., so that by the early fourteenth century they were practically supreme in these parts. But this predominance was threatened on the S.E. by the Carraras of Padua, and on the W. by the Visconti of Milan. In 1388 the Scala rule (which had lasted about one hundred and thirty years) came to an end, the domains of that family passing to the Visconti, who tricked the Carraras out of the share promised to them. But after the death of Gian Galeazzo Visconti in 1402 the power of his family was broken

for a time. The Carraras at once seized on Verona. But this excited the jealousy of the great state which had been steadily increasing in influence and authority in these regions, and was soon to swallow up all these striving families. In 1339 Venice had set foot on the mainland by its acquisition of Treviso and the March of that name. Now, in the struggle following Gian Galeazzo's death, it saw its opportunity, and it must be said that the Venetians made good use of the chance offered to them. In 1404 they occupied Vicenza and the neighbouring region of Belluno and Feltre (which from the tenth century had been governed by their bishops till these were replaced in 1321-2 by the Scala family), while in 1405 they laid hands upon Verona also. It is true that Belluno and Feltre were lost in 1411 to Sigismund, king of Hungary, (the later Emperor), but they were won again in 1420, and henceforth formed part of the Venetian dominions. Stimulated by these first successes, Venice brought under her rule the whole of Friuli (1418-1420), the Patriarchs of Aquileia being obliged to content themselves henceforth with being spiritual princes. Next, in 1426, Venice pushed on to the W., and occupied Brescia, while in 1428 she added Bergamo and its region. Her rule thus extended from the lower course of the Adda to near the course of the Isonzo.

To us who are paying special attention to the history of the Alps, the most interesting point about these conquests by Venice is how they affected some of the villages in the Eastern Alps which, of late, have become well known to travellers—such as Primiero, Caprile, and Cortina d'Ampezzo, two of which are Austrian (Tyrolese) at present, while Caprile alone is Italian.

Primiero long belonged to the Bishops of Feltre, but the discovery of iron mines near by led many persons to try to secure it for themselves, as lords under the suzerainty of the bishops. In 1355 the Emperor Charles IV. erected Primiero into a separate lordship, which passed (with Feltre) in 1363 to the Carraras of Padua. In 1373 this family ceded it (with Feltre) to the Habsburgers, who had recently become Counts of the Tyrol. However, in 1384 the new owners gave back Feltre

(as we saw above it became Venetian in 1404) to the Carraras, but reserved the lordship of Primiero, which was thus cut off from Feltre, and became part of the Tyrol. In 1401 they granted the district (with the stronghold of Castello della Pietra, destroyed by fire in 1675, the ruins being now inaccessible save by employing artificial means) to their chamberlain, George of Welsperg, whose descendants exercised jurisdiction there till 1827, and still inhabit the region. Such is the way in which Primiero became Tyrolese, though one would naturally have expected it to become Venetian, and so Italian.

Caprile, however, did become Venetian, and later Italian. It has always formed part of the district of Agordo, which belonged for centuries to the Bishop of Belluno (this see was united with that of Feltre in 1197, separated from it in 1462, and reunited to it in 1818). In the course of time the bishop's power became enfeebled, and he was replaced by a rapid succession of lords till in 1360 the district came to the Carraras of Padua. It was in the hands of the Habsburgers (as Counts of the Tyrol) from 1384 to 1386, but was lost (with all their lands) by the Carraras in 1388 to the Visconti. They held it till 1402, and in 1404 Agordo, with Caprile, was taken by the Venetians at the same time as Belluno and Feltre. The Tyrolese frontier is, of course, only a little way from Caprile at the present day, because the upper portion of the Cordevole valley (called Buchenstein) belonged to the Bishop of Brixen (that is, to the Tyrol), and so has had a history entirely different from those of Caprile and of Agordo.

The case of *Cortina* and the Ampezzo valley is utterly dissimilar. In 1500 the Habsburgers inherited, as part of the county of Görz, the Pusterthal, and so Toblach, with the valley running up S. to the Ampezzo Pass. The other side of the pass (with, therefore, *complete* command of the great highway from the Tyrol to Venice) was occupied for a while in 1509, though only definitively acquired in 1517, forming part of the spoils won by Maximilian of Habsburg from Venice (which, in 1420 had taken it from Aquileia, to whom it had belonged since 1335) at the end of the war of the League of Cambray.

Hence it is that though Primiero, Caprile, and Cortina are all on the S. slope of the Alpine chain, and so might be expected to be all now Italian, and Venetian in the past, this is really the case with Caprile alone, for Primiero was never Venetian, and Cortina was early lost to Venice. Yet, as every traveller in the Dolomites knows, the political frontier passes, to this day, quite close to all three spots, for by an historical accident two of them belong to a German-speaking state, though in each Italian is the mother-tongue of the inhabitants.

An early conquest of Venetian territory by the Habsburgers was that of the lower Val Sugana (which joins, at Primolano, the Primiero valley), taken by them in 1413, though nominally held till 1670 under the suzerainty of the Bishop of Feltre. Besides Ampezzo, Maximilian in 1517 obtained from Venice (he had occupied them in 1509) the towns of Roveredo and Ala (later, in 1576, given to the Bishop of Trent, when the Habsburgers formally acknowledged the temporal 'principality of Trent'), together with some neighbouring villages, all S. of Trent in the Adige valley. These acquisitions of 1517, together with Ampezzo valley and the Val Sugana, were formed (1518) into a district named the 'welsche Confinien' or 'Confinen' (that is, the Italian-speaking border-lands). It was annexed to the Tyrol (not to the bishopric of Trent, which, till 1803, was not formally subject to the Habsburgers), and formed a sort of 'buffer' region between the German-speaking Tyrol and the Italian-speaking domains of Venice. It should, too, be borne in mind that at that time the Trentino was not nearly as Italianised as it is at present. From 1027 onward it had formed a part of Germany, not of Italy, while Felix Faber, a German pilgrim who visited the city of Trent in 1483, tells us that then the lower city was purely German in character.

But these acquisitions by the Habsburgers at the cost of Venice represent but nibblings at the long-coveted Venetian dominions. By the Treaty of Campoformio (1797) Napoleon (or, strictly speaking, the French Republic) put an end to the independent existence of Venice as a sovereign state. The western portion of her territory, W. of the lower Adige

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(Bergamo and Brescia), was then annexed to the Cisalpine Republic (which in 1805 became the kingdom of Italy, under Napoleon himself), while the *eastern* portion (including the Bellunese and Friuli, with Venice itself) was handed over to the Habsburgers. But in 1805, at the Peace of Pressburg, the Habsburgers lost these rich plains, which were annexed to the kingdom of Italy. However, in 1815 they recovered the districts lost in 1805, and received, for the first time, the *western* portion (Bergamo and Brescia) of the Venetian state, so that they now held the whole of the Venetian dominions. This accession of territory completed (for by that time, as we shall see presently, they had also obtained the secularised bishopric of Trent), their occupation (1814-1859) of the *entire* region of the Eastern Alps, including both slopes of all the great Alpine passes included therein. The Italian possessions of the Habsburgers in N. Italy (the Milanese and the Veneto) were joined together in the 'Lombardo-Venetian kingdom.' But in 1859 the Milanese, and the western portion (Bergamo and Brescia) of the Veneto, were lost to the king of Sardinia (in 1861 to become the king of United Italy), while in 1866 the rest of the Veneto was handed over to the new kingdom of Italy. Thus ended the 'Venetian Phase' of the history of the Habsburgers. They kept only the bishopric of Trent, and the 'welsche Confinien,' a mere fragment of their territories between 1814 and 1859. It should be noted too that in 1866 the districts ceded by Austria were precisely those formerly held by Venice. That is the historical reason why such Italian spots as Aquileia, and Görz, and (to a certain extent) Trieste, are still Austrian, and have not become Italian, forming (with the Trentino) what is called 'Italia Irredenta,' though, strictly speaking, for many centuries no part of these regions has been in Italy.

The loss in 1859 of the Bergamasca meant the loss by the Habsburgers of the W. slope of the Tonale Pass (leading from Trent to the head of the Val Camonica, or the Oglio valley). In the same year they also lost to Italy the Valtelline, with Bormio and Chiavenna (in short, the upper valley of the Adda),

which they had received in 1815 (these districts, lost to the Grisons in 1797, had belonged, first to the Cisalpine Republic, and then to the Napoleonic kingdom of Italy). Thus they lost not merely the W. slope of the Stelvio Pass (from the Tyrol to the Valtelline), over which the Austrian Government had constructed, 1820-5, a magnificent carriage road, the highest (9055 ft.) in the Alps, to connect two bits of their dominions, but also both sides of the Aprica Pass (3875 ft.), a low and very easy pass (traversed by a carriage road) which leads from the head of the Val Camonica to the Valtelline.

With these two partial exceptions, and the S. slope of the Plöcken or Monte Croce Pass (4462 ft., from Carinthia to Friuli), lost in 1866, the Habsburgers still hold all the great Alpine passes in the Eastern Alps, so that our scheme of considering that the political history of the Eastern Alps is but a portion of that of the Habsburgers is fully justified.

The Alpine Lands of the Habsburgers during the Napoleonic Era.—During the few but terrible years that extend from 1803 to 1814 the lot of the Habsburgers, in their hereditary Alpine lands (we have mentioned the fortunes of the Veneto above) was a very chequered one. In 1801, indeed, they had been forced to hand over to France the lordship of Tarasp in the Lower Engadine (which France transferred in 1803 to the Swiss Confederation), but in 1803 they had gained an enormous accession of territory—the secularised bishoprics of Trent and Brixen (of which the lands had so long formed ‘enclaves’ in their Tyrolese possessions) as well as the archbishopric of Salzburg (including the secularised priory of Austin Canons at Berchtesgaden, founded in 1108): it was founded in the sixth century and had been a metropolitan see since 798, but was now secularised and made into a new electorate for the Emperor’s brother, the Archduke Ferdinand (formerly from 1791 to 1801 Grand Duke of Tuscany).

But they paid bitterly for their short and disastrous war against Napoleon in 1805, which was ended by the humiliating

Peace of Pressburg. Now they lost, and that too to their secular enemy, Bavaria, which was the ally of Napoleon, not merely the Tyrol (already held 1342 to 1363 by the Bavarian second husband of Margaret Maultasch), but also the Vorarlberg, the bishoprics of Trent and Brixen, and the lordship of Rhäzuns in the Grisons. The one gleam of light was the annexation of the electorate of Salzburg (which Ferdinand was compelled to give up for the newly created grand-duchy of Würzburg), and that meant much, for it included the upper Zillertal, the Brixental, and the territory of Berchtesgaden, as well as Windisch Matrei and the Pinzgau, all regions which projected into Tyrolese territory in a most uncomfortable way. In 1809-10, however, though the Habsburgers lost Salzburg to Bavaria, as well as a part of Carinthia and all Carniola to the French Empire (which added them to other districts and gave to the conglomeration the name of the 'Illyrian Provinces'), they had the satisfaction of seeing that Bavaria did not fare much better, for she lost the bishopric of Trent and a bit of that of Brixen (up to Botzen) to the Napoleonic kingdom of Italy, as well as Rhäzuns to France (it came to the Grisons in 1815). But after the fall of Napoleon the Habsburgers regained (1814-16) almost all their lost dominions—the Tyrol, the Vorarlberg, Salzburg, (including the whole of the Zillertal), the bishoprics of Trent and Brixen (all these from Bavaria) as well as Carniola and Carinthia (from France). One odd little loss to Austria must, however, be recorded. By some accident, in 1814, the Austrian diplomatists, when drawing up the list of the territories which Bavaria was to hand over to them, forgot to mention the district of Berchtesgaden (which had become Bavarian in 1810); it, therefore, remains Bavarian to this day, though it juts awkwardly into Austrian territory. Such are the vagaries of historical geography, the study of which clears up many puzzling territorial arrangements, which, at first sight, seem contrary to common-sense and to any theory of 'natural frontiers.'

(ii) THE BAVARIAN HIGHLANDS

We must now for a moment turn our thoughts backwards in order to consider briefly the fortunes of the duchy of Bavaria, after, in 976, it had lost successively the East Mark, the North Mark, and the South Mark. Its dimensions were thus much shrunken, and continued to shrink as the power of the Bishop of Brixen and of the Archbishop of Salzburg grew and increased, for that meant the loss of the future Tyrol and the future Salzburg. The duchy came back in 1002 to the German king, who kept it till 1061 in his own hands or those of his relations. But in 1070 it passed to the Guelfs. Henceforward its history was much disturbed till the Emperor in 1180 dethroned Henry the Lion, and gave the much shrunken duchy to one of his adherents, Otto of Wittelsbach (a castle—destroyed in 1209—near Aichach, N.E. of Augsburg), whose descendants reign in Bavaria to-day. This dynasty restored peace to the country, and, though much hampered by the many lines into which it split up, gradually won back much of the territory that had been lost. It little by little gathered in the lands of various noble families which became extinct, in particular in 1248, the wide Bavarian possessions of the Counts of Andechs (whose Tyrolese fiefs then reverted to the Bishop of Brixen). In 1255 we first hear of the division of the land into Upper Bavaria (which alone concerns us here) and Lower Bavaria, the last joined to the Palatinate of the Rhine. By the early fourteenth century the Dukes of Bavaria of the new line had extended their limits as far as the crest of the mountain chain that shuts in, on the N., the Inn valley between Innsbruck and Landeck, but they did not yet hold the entire N. slope of this chain. The highest point of prosperity was reached when the duke became, under the name of Louis IV., German king in 1314 and Emperor in 1328 (d. 1347), for not merely did he hold his patrimony, but also (from 1324 onwards) the North Mark (or Brandenburg, lost to his family in 1373), while his son had also the Tyrol (1342-1363) as the second husband of Margaret

Maultasch. But in 1505 (formally in 1507), after a war of succession, Bavaria had to give up to the Habsburgers (as we saw above) Kufstein, Kitzbühel, Rattenberg, and the Bavarian bit of the Zillerthal—these had reverted to Bavaria on the death of Margaret Maultasch (1369), but were never held permanently by Bavaria again, this loss meaning that of the right bank of the Inn and of the S.E. bit of old Bavaria. Some consolation was afforded by the elevation of Bavaria to an Electorate in 1623, a dignity then taken from the younger or Palatinate line of the house. In 1567 (1575) the lordship of Hohenschwangau, E. of Füssen) and in 1734 that of Hohenwaldeck (E. of the Tegernsee) were acquired, thus further completing and strengthening the S. or Alpine frontier of Bavaria. But it was in 1803-5 that Bavaria made large *permanent* additions to its territory (without taking count of the *temporary* occupation of certain districts, mentioned under the section relating to the Habsburgers in the Napoleonic era). In 1803 it acquired the secularised bishopric of Preising (in particular the county of Werdenfels, which included Mittenwald, Partenkirchen, etc., and so one slope of the Zugspitze), and also that of Augsburg (this meant for the first time an advance to the left bank of the Lech, long the Bavarian W. frontier, and on past Füssen and Oberstdorf to the right bank of the Iller). In 1805, besides a royal crown (assumed on January 1, 1806) and the temporary possession of the Tyrol, Vorarlberg, etc., it permanently won from the Habsburgers the county of Königsegg-Rothenfels (on the left bank of the Iller), the lordship of Hohenegg (with Weiler), just W. of the former, and the old Imperial Free city of Lindau, on the N.E. shore of the Lake of Constance, which was thus reached (though scarcely more than touched) after many years of effort. (Let us note in passing that in 1805 Bavaria also got the old Imperial Free city of Buchhorn, on the N.E. shore of the lake and a little to the N.W. of Lindau: but in 1810 it had to give it up to Napoleon's ally, Würtemberg, whose ruler became king, like his neighbour of Bavaria, on January 1, 1806, and rechristened this acquisition in his own honour as 'Friedrichshafen'). These acquisitions rounded off

the Bavarian frontier towards the S.W. and the Vorarlberg, while the retention of Berchtesgaden and its territory (got from the Habsburgers in 1809, but *not* restored in 1814) completed the Bavarian frontier at its S.E. corner.

It was thus in 1805 only that the Watzmann (8901 ft.) became wholly Bavarian, and in 1803 that the Zugspitze (9738 ft.) attained the honour of being (as to its E. slope at least) Bavarian, and so now the loftiest summit within the German Empire. But to the S.W. rises the higher Parseierspitze (9968 ft.), which is wholly within the Tyrol (therefore Austrian), while the other two loftiest peaks in the N. limestone ranges, the Dachstein (9830 ft.) and the Hochkönig (9639 ft.), rise much further to the E., the latter being wholly within the Salzburg district, while the former is the meeting-point of Upper Austria, Salzburg, and Styria. It will thus be seen that Bavaria, and so 'Germany' as distinguished from 'Austria,' can claim but part of one slope of the outermost and lowest limestone range of the Alps, so that the plaintive lament of the German writer, quoted in the preceding Chapter (p. 60), is completely justified, and even justifiable.

POLITICAL PEAKS (Eastern Alps)

At the end of the corresponding section relating to the Central Alps, it was pointed out that E. of the Bernina Pass the physical and the political frontiers are all but utterly distinct. This phenomenon appears also in the Eastern Alps, and for a similar reason, namely the annexation to the possessions of the Habsburgers (as to Switzerland or Italy in the case of the Central Alps) of lands which lie to the N. or S. of the great 'divide' of the Alps. Such are the bishoprics of Trent and of Brixen (as to its S. portion), the archbishopric of Salzburg and the county of Görz (as regards the Pusterthal).

Hence from the Reschen Scheideck Pass the *physical frontier* runs along the crest of the snowy regions of the Oetzthal, Stubai, and Zillertal ranges; of course, the whole of each of these groups is Austrian, though occasionally shared by two or

more provinces of that Empire. Some of the higher summits are on the divide itself, so the Weisskugel (12,291 ft.) in the Oetzthal group, and the Hochfeiler (11,559 ft.) in the Zillerthal Alps. But some seem to take pleasure in rising a little way to the N. or to the S. of the main divide. Thus the Wildspitze (12,382 ft.) in the Oetzthal Alps, and the Zuckerhütl (11,520 ft.) in the Stubaihal Alps, each being the loftiest in its particular region, rise N. of it.

Some geographers consider that the main divide of the Alps E. of the Zillerthal group is formed by the Tauern range, which is undoubtedly the loftiest ridge. Here, too, a phenomenon similar to those already noted occurs—of its higher summits the Dreiherrnspitze (11,500 ft.) and the Gross Venediger (12,008 ft.) rise on the divide itself, but, further E., the Gross Glockner (12,461 ft.) stands on a spur to its S., while the Gross Wiesbachhorn (11,713 ft.) stands on a spur to the N. of the great divide. The name of the Dreiherrnspitze comes from the fact that in olden days the boundaries of the Tyrol, Salzburg, and Görz (the Pusterthal or Carinthian bit) met on its summit, while the Gross Venediger was so called as it also bordered on the county of Görz (inherited by the Habsburgers in 1500), which occupies a portion of the territory formerly held by the ancient Veneti, though never by the city of Venice.

Other geographers hold that the real main ridge of the Alps follows the watershed. From the Dreiherrnspitze this dips S., passes over the Hochgall (11,287 ft., the highest point of the Rieserferner group), and rejoins the political frontier a little N.E. of the Drei Zinnen. Thence the watershed and the political frontier continue in company for some time, the Monte Peralba (8829 ft.), in the Carnic Alps, rising to the S. of the main ridge, on which, however, are the two highest points of the Carnic Alps, the Monte Coglians (9128 ft.) and the Kellerwand (9105 ft.) as well as Monte Canin (8471 ft.) in the Julic Alps. Near the Predil Pass and Monte Canin the main ridge (leaving the political frontier) bears E., and rises in the Manhart (8786 ft.) and in the Terglou (9400 ft.), the culminating point of the S.E. Alps in general), though the two loftiest summits of the Karawankas

Alps, the Stou (7346 ft.) and the Grintouc (8429 ft.), are on a great E. spur. But the political frontier (largely conventional for historical reasons) bears S. from near the Predil Pass (N.E. of Monte Canin), and keeping W. of Görz, reaches the shores of the Hadriatic a little to the W. of Aquileia.

It will thus be seen that the physical frontier leaves to the S. the whole of the Ortler, Adamello, and Dolomite Alps, and this for the historical reasons given above—these groups rise in the Brixen, Trentino, or Venetian districts. Of course the *political frontier* also follows (roughly speaking) a watershed, that, namely, which from the Stelvio runs S. to the head of the Lake of Garda; this frontier then makes a great circle to the N.E., E., and S.E. (to the S. are the Bellunese and Friuli, both now Italian and not Austrian), till it passes E. of Cividale and W. of Görz, before reaching the coast of the Hadriatic just W. of Aquileia. But we find that the highest summits often do not rise even on this secondary watershed (so to call it). In the Ortler group, the Königsspitze (12,655 ft.) and the Monte Cividale (12,382 ft.) do rise on it, and so are half Tyrolese and half Italian (in the county of Bormio, so were half Swiss or in the Grisons, 1512-1797), but the Ortler itself (12,802 ft.)—the loftiest summit in the Tyrol and so in the Eastern Alps—is a little to the N., and so is wholly Tyrolese. In the Adamello group, the Adamello (11,661 ft.) itself is W. of the political frontier, and so is wholly Italian and Bergamasque (therefore Venetian from 1428 to 1797), while the Presanella (11,694 ft.) and the Carè Alto (11,369 ft.) are to the E. of the political frontier, and so are wholly within the Austrian Trentino, as are also the Brenta Dolomites (culminating in the Cima Tosa, 10,420 ft.), still farther to the E. Among the Dolomites the glorious rock needles of the Rosengarten (which culminate in the Kesselkogel, 9846 ft.), the Langkofel (10,427 ft.), and the other Grödnerthal peaks are to the W. of the political frontier, and so are now wholly Tyrolese, as formerly included in the territory of the Bishop of Trent. The Pala di San Martino (9831 ft.) is by a curious freak wholly Austrian (since 1373, like the Primiero valley), but the Sass Maor (9239 ft.), the Cima di Vezzana

(10,470 ft.)—the Cimone della Pala, 10,453 ft., rises on a N.W. spur, and so is wholly Austrian—and the Marmolata (11,024 ft.), the highest of all Dolomites, are on the political frontier, and so half in the Tyrol, and half in the Bellunese (now Italian, but formerly Venetian). On the other hand, the Monte Civetta (10,564 ft.) and the Pelmo (10,397 ft.) rise to the E. of the political frontier, and so are wholly in Italy (*i.e.* in the Bellunese). Of the Cortina Dolomites the Antelao (10,706 ft.) is S. of the frontier, in the Bellunese, and so wholly Italian, while the Tofana (10,633 ft.) is W. of the frontier, and so wholly Tyrolese. But the Sorapiss (10,594 ft.), Monte Cristallo (10,496 ft.), and the Drei Zinnen (9853 ft.) are all on the political frontier, and so are half Tyrolese (since 1517) and half in the Bellunese (and so were half Venetian from 1404 till 1797). Farther E., the Monte Peralba (8829 ft.) is S. of the main watershed, and so wholly Italian, though as it rises to the W. of the frontier between the Bellunese and Friuli, it is entirely in the former district. But Monte Coglians (9128 ft.) and the Kellerwand (9105 ft.) rise on the political frontier between Austrian Carinthia and Italian Friuli. Monte Canin (8471 ft.), too, rises on the political frontier between Italian Friuli and the Austrian county of Görz. But the Manhart (8786 ft.) and the Terglou (9400 ft.) are wholly Austrian (rising on the frontier between Carniola, E., and the county of Görz, W.), as are the Stou (7346 ft.) and the Grintouc (8429 ft.), which are on the frontier between Carinthia, N., and Carniola, S., the E. flank of the last named being claimed by Styria.

CHAPTER VIII

THE GREAT HISTORICAL PASSES OF THE ALPS

THE Alps form a mighty barrier between Italy and the outer world. But this barrier can be either turned at its W. or E. extremity (this was the course probably taken by the earliest barbarian invaders) or boldly forced at one or the other point. It is with the latter method that we are here concerned. Now it is an altogether erroneous idea to imagine that a mountain ridge (whether it be the main watershed of the Alps or a secondary range) always separates in a very marked degree the inhabitants living on one slope from those living on the other. To hurried travellers from the plains this may seem to be the case. But history teaches us that passes rather bring together the regions situated on their opposite slopes, so that often these are linked together by far closer bonds than with other districts towards which they might seem to be naturally attracted by reason of easier communications. Instances of this are afforded by the Mont Genève, which joined under one ruler (the Dauphin of the Viennois, later the king of France) the valleys lying to its E. and to its W., and that till 1713; or the Great St. Bernard, by means of which the valley of Aosta was long connected with Burgundy to the N., rather than with Italy to the S.; or the St. Gotthard, which unites the Swiss Cantons of Uri and Tessin with each other; or the Brenner, that has greatly helped to create the Tyrol, which sits astride of this mountain ridge. No doubt it is true that in some cases mountain passes have afforded to the men on one slope the chance of conquering and subjugating those on the other. But our point is rather that, given an original conquest or emigration or what not, dis-

tricts which are physically separated by a more or less lofty mountain ridge have, later on, frequently shared the same historical fortunes, and even now are joined together under the same ruler. In fact, one is almost tempted to venture on the paradox that mountain ranges unite rather than divide, while a physical obstacle in a valley will prove far more potent by cutting off the lower from the higher portion (witness such cases as the Chisone valley, the Val de Bagnes, the Avers valley, the upper Inn valley, the composite valley known as the Pusterthal, and so on). Of course, like all paradoxes, the one we have put forth is not universally true. But it is true in a sufficiently large number of cases to justify us in throwing it at the heads of our readers, for the end and object of a paradox is first to startle, then to induce a more careful examination of the subject in hand, and so to bring out new aspects of the matter, or to throw fresh light on well-known facts.

It is a well-ascertained fact that with the single exception of the Septimer (with which the Splügen was often confounded in the pages of older writers) no pass in the Central Alps (that is, between the Simplon and the Reschen Scheideck) across the main watershed was known, or at any rate frequented, till the early Middle Ages. In short, the Central Alps were not opened towards Italy till a comparatively recent date, though now one need only think of the St. Gotthard to realise how completely things have altered in this respect. Further, as between the passes in the Western Alps (Col de Tenda to the Simplon) and those in the Eastern Alps (Reschen Scheideck to the Predil and the Radstädter Tauern) there were several marked points of difference. One is that in the Western Alps there was a great river-valley (that of the Rhone) with several branches (for instance the Durance and the Isère) which afforded easy access from the Mediterranean (which is almost touched by the Maritime Alps) to the valleys of the W. slope of the Alps, and thus caused them to lie open to attack or to occupation by the first comer who profited by this great natural highway. But in the Eastern Alps no river flows down towards the Hadriatic, save the Adige, which is there the counterpart of the Rhone: the

other rivers flow away eastwards (think of the Inn, the Drave, and the Save), and being separated from the sea by several ranges, cannot be used as highways from the sea to the valleys on the E. slope of the Alps as is the case with that of the Rhone. A second point of difference between the Western and Eastern ends of the Alps is that the latter was for centuries a borderland or 'march' towards, at varying dates, the strange tribes of the Magyars, the Slavonians, and the Turks, and therefore, like all frontier lands, was unsettled, exposed to incursions, and not attractive to peaceful dwellers, ready and able to cultivate and to civilise it. How far different was the case in the Western Alps, where the rich and well-cultivated plains of Gaul, teeming with Roman civilisation, seemed to invite attack, while there were secure, uninterrupted, and peaceful communications with Italy. Once again it is noteworthy that at the W. end of the Alpine chain the main watershed consists of one ridge and so is easily crossed. At the E. end of the Alpine chain, however, two or even three ridges (spreading out like the sticks of a fan) have to be crossed before the journey from the plains on the N. to those on the S. is completed. For instance, by means of the Mont Genève, the Mont Cenis, or either of the St. Bernards, the crossing of a single pass led from Gaul to Italy. But in the Eastern Alps the mediæval highway from Augsburg to Milan crossed successively three ranges by the Fern, the Reschen Scheideck, and the Umbrail Passes, while the route from Salzburg to Venice had similarly to traverse the Lueg gorge, the Radstädter Tauern, and then either the Ampezzo, the Plöcken, the Predil, or the Pontebba (Saifnitz) Passes. Nowadays, for political considerations, the great railway line from Vienna to Trieste is carried under four ranges by as many tunnels—beneath the Pyhrn and the Hohe Tauern Passes, next piercing the Karawankas Alps, and finally the Julic Alps by the Wochein tunnel. One reason, no doubt, for the fact of such complicated routes in the Eastern Alps has been already pointed out—the rivers there flow eastwards and not southwards, so that instead of simply mounting a single valley to the pass at its head, it was necessary to cross three roughly parallel ridges, thus descending into may-

hap deep-cut river beds, and twice reascending out of them, this course rendering the traverse of this portion of the Alps very toilsome, even though the passes themselves may be easier and lower than at the W. end of the Alpine chain. Yet there were also drawbacks in the Western Alps. If the main watershed consisted of but one ridge it was often necessary (if one came from the W.) to cross a second in order to reach the foot of the former, if one desired to avoid a great *détour* by following a long and winding river-valley in all its length. For instance, in order to reach the W. foot of either the Col de l'Argentière or the Mont Genève direct from the Rhone valley, it is necessary to cross a second pass (whether near Gap or by the Col du Lautaret) to gain the Durance valley, whence both passes lead to Italy. Herein an enormous advantage lay with other passes to which a single valley led up straight from the plains on the W., and hence the mediæval Mont Cenis finally beat the Roman Mont Genève out of the field. So, too, the Roman Great St. Bernard beat the mediæval Simplon (till the latter got a high-road made over it). Similarly, in the Central Alps the St. Gotthard and the Septimer became the great highways when the Alps were better known, the journey over the neighbouring passes, such as the Lukmanier, the San Bernardino, the Julier-Maloja, etc., involving far more labour and time. In the Eastern Alps the Brenner enjoys a similar advantage over its neighbours.

The political importance which attached to the possession of Alpine passes is so obvious that we need not dwell upon it at length. The long struggle for the Valtelline (or upper valley of the Adda) between 1620 and 1639 shows this, for by it the Milanese and Imperial lines of the House of Habsburg could communicate and help each other, while the object of their enemies (whether French or Swiss) was to block this highway. So, too, Napoleon, 'that great master of practical geography,' as Mr. Ball calls him, took very good care to secure his hold on the Vallais, and thus on the Great St. Bernard and Simplon Passes—from 1802 to 1810 it was formed into a Rhodanic Republic, quite distinct from the Helvetic Republic (of which it formed

part from 1798 to 1802), while from 1810 to 1814 it was simply the 'Département du Simplon' of the French Empire. A much earlier case of the importance attached to the holding of the passes over the Alps is afforded by the special care as to this point shown by Charles the Great when elaborating a scheme (never carried out, owing to the death of two of the intended beneficiaries) for the division of his Empire (which, as we have before pointed out, included the entire chain of the Alps) among his three sons in 806. The eldest son, Charles (d. 811) was to receive on his father's death the old Frankish realm; Pippin, the second son (d. 810), Italy, Bavaria, and Rætia; and the youngest son, Louis (who alone survived his father, and is known in history as Louis the Pious), was to have what corresponds to E. and S. France (including Savoy). The Empire being thus partitioned out, Charles continues: 'This division is so arranged that Charles and Louis may have a route into Italy open to them so as to assist their brother, if occasion arise, Charles through the valley of Aosta, which belongs to his kingdom, and Louis through the valley of Susa, while Pippin is to have his going out and his coming in through the Noric Alps and past Coire.' It will be seen that the lands received by each son were so disposed as to allow of the command of the several passes named—Charles had the Great St. Bernard, and Louis the Mont Genève and the Mont Cenis, while Pippin held the later Tyrol, and also the route past Coire, the Brenner and Septimer Passes being here meant.

The enumeration of the Alpine passes thus secured by Charles the Great to his heirs is not merely interesting as showing us which were then the most frequented, but also because none of these passes is described by any special name, the route being indicated simply by stating the valley or the region of the Alps through which it passed, or the important Alpine city which was necessarily visited in the course of the journey. In fact, the modern practice of attributing special names to Alpine passes does not come in vogue till the early Middle Ages. Hence in trying to trace out, say, the journey of an Emperor or great ecclesiastic across the Alps, we have to note the towns by which he passed

and the valleys which he traversed. There are very few exceptions to this general rule, which obtains to some extent even in the early Middle Ages, so that considerable patience has to be exercised in this matter. As we should expect, it is the more westerly passes from Italy to Transalpine Gaul which are first mentioned by special names, *e.g.* the Mont Genève, the Mont Cenis, and the two St. Bernards. These were 'through routes,' and so had to be distinguished from the minor highways. Only fugitives and very cunning military commanders, for similar reasons of secrecy, used these side tracks. It is remarkable how many of the old Roman and mediæval passes still retain their predominance in modern times, even though, *inter se*, the popularity of one may decline, or that of another may increase—in short, there are 'fashions' in Alpine passes, as well as in most other matters pertaining to mankind.

Before entering on an account (which must be brief, as befits our limits) of the chief Alpine passes, we must lay down some rule or principle by which to distinguish a 'great historical pass' from a minor one. This is not so easy a task as it seems to be at first sight. Obviously we *must* place in the forefront the principal passes across the *main* divide of the Alps, those, in other words, which connect the outer world with fair Italy. But since to the epithet 'great' we have added that of 'historical,' it follows that in these pages it is the historical part played by any pass, and not merely its topographical features (directness, easiness, lowness), which must guide us in making our selection—whether the historical importance of the pass be due to military, to commercial, to economical, or to political reasons. This qualification of 'historical' implies further that we cannot, as some writers urge, leave wholly out of sight those passes which do not traverse the main divide of the Alps, but cross its lateral ridges. The international importance of these passes may not be so great as in the case of the former class, but their historical importance (particularly in the case of shiftings of the population, etc.) may be even greater. Hence we propose to include both classes in the following brief survey, though, of course, it is impossible to enumerate all the passes which have played a

part in purely local history. Our choice has been based on a very wide and detailed personal knowledge of both classes of passes (though less detailed in the Eastern Alps than in the two other divisions of the chain), and it is hoped that no really 'historical pass' has been omitted. But, of course, the passes over the main divide will claim most of our attention, the others having to be content with a more or less cursory mention.

As we have indicated elsewhere, the knowledge of the Alpine passes possessed by the Romans has, in our opinion, been vastly exaggerated. That practical race did not stop to admire the beauties of nature, but faced the horrors of the mountains for purely business reasons—military, administrative, or commercial: it was only after the spread of Christianity that pilgrims and ecclesiastics swelled the throng of travellers over the Alps, on their way to or from the 'threshold of the Apostles,' Rome, the true centre of Western civilisation in all respects. Still, as it is mainly from Roman writers (with an occasional Greek geographer, like Strabo) that we owe our first more or less detailed knowledge (however imperfect) of the Alpine passes, it is best to consider which passes are actually mentioned by them or in the Itineraries, or in surviving inscriptions. We exclude in each case the so-called pass by the Maritime Alps, which is simply the way along the shore of the Mediterranean from Genoa to Marseilles, traversing one of the last spurs (1490 ft.) of the Alps at Turbie, above Monaco, and is not a pass in the modern sense of the term, though it does cross the main divide of the Alps that runs S. from the Mont Clapier. Materials fail for tracing out the *gradual* spread of the knowledge of the Alpine passes, a subject which would be most interesting, if only it were possible to treat it adequately.

Strabo (first century A.D.) reports that Polybios (second century B.C.)—the passage has been preserved to us by Strabo only—enumerated (besides the pass through the country of the Ligurians, *i.e.* the Turbie route) three passes across the Alps—first that through the country of the Taurini, 'which was crossed by Hannibal,' then that through the country of

the Salassi, and finally that through the country of the Ræti. These routes seem to be the Mont Genève (*not* the Mont Cenis, for reasons to be mentioned presently), the Great (though possibly the Little) St. Bernard, and the Brenner. Servius (early fifth century A.D.) commenting on a passage of Virgil's *Aeneid* (book x. line 13), quotes the statement (preserved to us only by this citation) of Varro (first century B.C.) that in the Alps of Gaul (*i.e.*, roughly speaking, the Western Alps of this work) there were five passes known to him, one being that through the country of the Ligurians—the others are described with a precise though tantalising vagueness as that which Hannibal crossed, that which was traversed by Pompey on his way to the war in Spain, that by which Hasdrubal came from Gaul to Italy, and finally that through the Graian Alps. The last named is clearly the Little St. Bernard, while the rest, though clearly all in the *Western* Alps, have been the subject of many discussions. It is not our intention to enter here on the much-vexed question of the pass which was crossed by Hannibal when he entered Italy in B.C. 218, that event for the first time bringing it home to the Romans that the barrier of the Alps was not as impassable as they had fondly believed it to be. But the present writer may be allowed to state that he is very strongly in favour of the Mont Genève. No doubt there are contradictions and discrepancies in the accounts of this famous passage which have been handed down to us by Polybios and by Livy. But the present writer has himself either crossed, or in a few cases reached the summit of (that is, ascended one slope only) *every* pass in the Alps, high or low, which has ever been claimed by even the wildest writer (and there are many of them) as being possibly that of Hannibal, and his conviction has been confirmed more and more that the Mont Genève was in all probability the pass. In any case, he is of opinion that its only really serious rival is the Little St. Bernard, the other passes which have been brought forward all failing in some important respect to meet the requirements of the case. It should, however, be always borne in mind that all these accounts we have of passes across the Alps are second-hand—Strabo and

Servius may easily have misquoted or misunderstood the authors they cite, while Hannibal's march is known to us only by the reports given by the Romans, and not (unfortunately) from Carthaginian sources.

Let us now turn to the 'Itineraries,' which date from the fourth century A.D., and so from near the end of the rule of the Romans, and a little while before the arrival of the 'barbarians.' Of these, that known as the Antonine Itinerary is the most important, while the Jerusalem Itinerary mentions but two passes on the way from Bordeaux to Jerusalem, but that called the 'Peutinger Table' (a thirteenth century copy of a fourth century original) is very useful in its way, though it is pictorial rather than a mere dry list of 'stations' like the two others. Now (always excluding the route by the 'Maritime Alps') we find that the Mont Genève (which is the first pass indicated by the Jerusalem Itinerary) is mentioned both by the Antonine Itinerary and the Peutinger Table. Both also mention the Little and the Great St. Bernard (not by their present names, of course), possibly the Splügen, certainly the Septimer, and the Brenner, as well as two low passes on the extreme E. limit of the Alps, the Birnbaumer Wald (also mentioned by the Jerusalem Itinerary), from Laibach to Görz, and the Pyhrn Pass, from Liezen (Enns valley) to Linz. The Antonine Itinerary alone indicates the routes over the Monte Croce (Plöcken) Pass and the Saifnitz (Pontebba) Pass, across the most southerly of the three ranges at the E. end of the Eastern Alps, while the Peutinger Table alone mentions that of the Radstädter Tauern, across the central of the above-mentioned three ranges. These are all the passes which are actually mentioned in the Itineraries, and which therefore were *certainly* known to the Romans in the fourth century A.D., while the mile-stones found on the Radstädter Tauern route have inscriptions mentioning Septimius Severus and Caracalla (early third century). Claims have been made for other passes on the ground of monuments, inscriptions, milestones, finds of Roman coins (*e.g.* the St. Théodule and the Julier), etc. But though passes other than those mentioned expressly in the Itineraries

were (it is highly probable) known to the Romans and certainly to the inhabitants, it is, in the opinion of the present writer, impossible to say definitely that, in addition to those already enumerated, any other passes were known to the Romans than the Col de l'Argentière (in the Western Alps) and the Jaufen Pass, as well as the Sölscharte and other passes over the Tauern range (in the Eastern Alps). As stated previously, the Central Alps were (save in the case of the Septimer, and possibly of the Splügen) only opened by passes in the Middle Ages.

Of course, the names actually borne by the Alpine passes are modern. But it is interesting to note that in a few cases names are given to passes in the Itineraries, this fact probably showing that these were the most frequented routes. Thus the Mont Genève (which was *the* great Alpine pass known in antiquity) is called 'Alpes Cottiaë' or 'Alpis Cottia' by the Antonine Itinerary and Peutinger Table respectively, while the Jerusalem Itinerary adds the name of 'Matrona.' Both the Antonine Itinerary and the Peutinger Table call the Little St. Bernard 'Alpes Graiaë' or the 'Alpis Graia,' and the Great St. Bernard 'Alpes Penninaë' or the 'Summus Penninus.' This agrees with the view that the passes across the Western Alps were by far the most important in antiquity. The Antonine Itinerary attributes no names to any of the other passes it indicates. But the Peutinger Table gives the singular and hitherto unexplained appellation of 'Cunu aureu' apparently to the Splügen, while it calls the Birnbaumer Wald the 'Alpis Julia,' the Jerusalem Itinerary preferring the form of 'Juliaë.'

After these general considerations as to the Alpine passes known of old, we must go on to speak more in detail of those which were frequented (by the Emperors on their way to Rome, or by pilgrims or by armies or by students or by merchants) in the Middle Ages and in still more recent times. It seems most convenient to enumerate these passes under the heads of the Western, the Central, and the Eastern Alps, briefly (for our limits forbid more) pointing out the chief historical characteristics of each, and recalling by the way the minor passes across the main

divide, and the principal routes over lateral ridges. By a curious irony of fate the very first of our 'Great Passes,' the Col de Tenda, crosses, strictly speaking, a lateral ridge, for the main divide of the Alps dips S. at the Mont Clapier, a little to its W., and runs down to the Turbie spur. It need hardly be pointed out that the routes from all these passes converge in Italy towards one of the great cities of Turin, Milan, and Venice, which (roughly speaking) form the goal respectively of the passes from the Western, the Central, and the Eastern Alps.

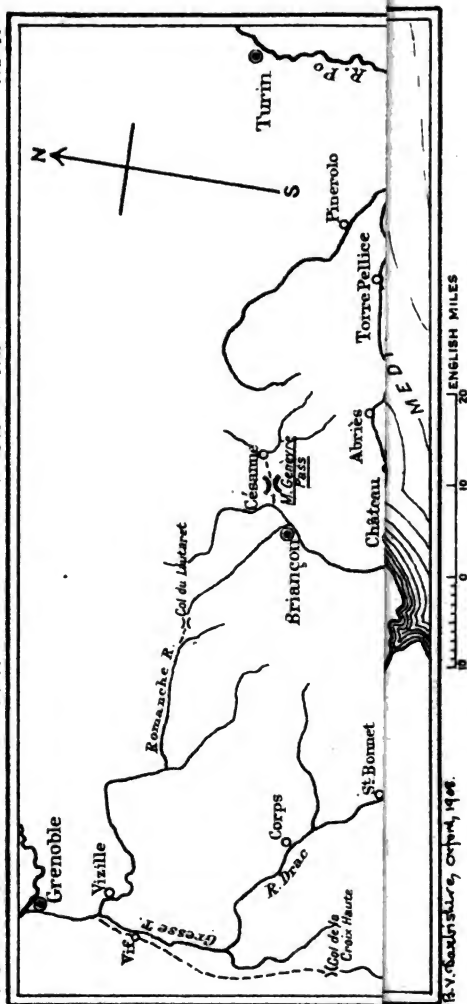
I.—THE WESTERN ALPS

In this region we may reckon about eight great historical passes (Tenda, Argentière, Mont Genève, the Mont Cenis, the two St. Bernards, the Antrona Pass, and the Simplon), which we must now briefly notice in topographical order, intercalating a few minor passes which seem to deserve a mention.

The most southerly of these passes, the *Col de Tenda* (6145 ft.), leading from Cuneo past Tenda to Ventimiglia, has always been chiefly useful to the local lords (first the Counts of Tenda, then the Angevin Counts of Provence, and from 1575 onwards the House of Savoy) who have ruled over the regions on either slope, which are linked together by it. Crossed in 906 by the Saracens of La Garde Freinet on their way to ravage the region of Cuneo, it comes into importance mainly after 1388 when the county of Nice passed to the House of Savoy, the heads of which used it as their shortest route from one part of their dominions to another. The town of Nice can, however, only be reached by this route after crossing two minor passes, for the direct route from the pass runs down the valley of the Roja to Ventimiglia. A carriage road was constructed across it, 1779-1782, though the tunnel beneath the crest of the pass, commenced by the Dukes of Savoy in the early eighteenth century, was only completed in 1882. But, owing to the French 'enclave' of Saorge, etc. (see Chapter VI.), the projected railway line to Ventimiglia cannot take the natural course down the Roja valley, but

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must pass through a second tunnel in order to round this obstacle, and the extra expense will no doubt long hinder the carrying out of this scheme. The Col de Tenda is also used as a means of communication between Cuneo and Nice, but to reach that town two other lower ridges must be crossed on the way, the first by the *Col de Brouis* (2749 ft.), from Giandola to Sospel, and the second by the *Col de Braus* (3278 ft.), over the main divide of the Alps, from Sospel to L'Escarène, whence, after crossing a third ridge, the Paillon glen is followed to Nice. At Nice fall in the direct routes from Barcelonnette through the Var valley by the new carriage road over the *Col de la Cayolle* (7717 ft.) or through that of its affluent, the Tinée, over the mule pass of the *Col des Granges Communes* (8242 ft.). These passes were frequented in the older days when both Barcelonnette and Nice belonged to the House of Savoy. On the other hand, the *Col delle Finestre* (8107 ft.) is still the most frequented pass of the region, next after the Col de Tenda, for on its S. side (though still in Italian territory) is a locally famous sanctuary of the Madonna.

Next in order comes the *Col de l'Argentière* (6545 ft.), so called in France from the first village, Argentera, on the Italian side, while the Italians call it 'Col de Larche,' from the first important village on the French side.—it is also called 'Col de la Madeleine,' from a chapel near the top. It leads from Cuneo to Barcelonnette in the Ubaye valley. It is one of the very few Alpine passes which, though not mentioned in the Itineraries, yet was certainly known to the Romans, as is shown by various antiquities found on the route, though the inscriptions are said to be forged. Some writers have attempted to show that it was Hannibal's pass, but, in the opinion of the present writer, who crossed it in 1883 in company with the chief supporter of this theory, this view is untenable. As the route over it leads to the valley of the Durance, it is necessary to cross a second pass before reaching the central bit of the Rhone valley, and this topographical drawback has always told against our pass. After the county of Nice (which included Barcelonnette) came to the House of Savoy from the Counts

of Provence in 1388, and till Barcelonnette became French in 1713 (the rest of the county did not come to France till 1860) our pass was the chief route for the Savoy sovereigns from Piedmont to this part of their dominions, for both sides of the Mont Genève were (from 1349) French. The main historical event in the annals of the Argentière is the passage of Francis I. in 1515 on his way to Italy. It was later crossed by armies in the seventeenth and eighteenth centuries. The carriage road across was begun by Napoleon (though not completed till of late years), who styled it 'route impériale d'Espagne en Italie,' while it actually bears the title of 'route de Montpellier à Coni.' The *Col de Vars* (6939 ft.) is, however, the direct military route (especially since the construction of a char road across it) from the grand Tournoux Fort near the W. foot of the Argentière to the junction of the Guil glen below Briançon with the main Durance valley.

N. of the Argentière and yet S. of the Mont Genève the main divide (almost everywhere easily crossed) is traversed by several passes, none of them boasting of a carriage road. The *Col de l'Agnel* (9003 ft.) leads from the Queyras valley (or Guil valley) to Château Dauphin (Casteldelfino) at the head of the Varaita valley, and was (till Château Dauphin became Savoyard in 1713) the main route from the Dauphiné to that outlying bit of Dauphinois territory. That village, still dominated by the ruined fourteenth century castle of the Dauphins whence it takes its name, is indeed a great meeting-point of routes over easy Alpine passes, for the *Col de Longet* (8767 ft.) and the *Col de Lautaret* (9426 ft.) both join it to the head of the Ubaye valley, while the *Col de Vallante* (9269 ft.) connects it with the head of the Guil valley, and so with the Traversette and the Croix routes. Rather to the N. of Monte Viso is the *Col de la Traversette* (9679 ft.), leading from the Queyras to the head of the Po valley: it is noteworthy by reason of the extraordinary tunnel pierced a little below the crest between 1478 and 1480 by Louis, Marquess of Saluzzo, and Louis XI. of France, in order to facilitate exports, particularly of salt from Provence into Italy, and of rice

and oil from Italy into France: the present writer has often passed through this 'trou' or 'pertuis,' which later was blocked up by falls of rock, though reopened in 1907. Still more to the N. is the *Col de la Croix* (7576 ft.), which, even to this day, is the main means of communication between the Queyras and the Val Pellice, the principal of the Waldensian valleys of Piedmont: on the French side stands one of the small hospices built by Napoleon I., while on the Italian side there is a small inn, above the picturesque ruined fort of Mirabouc.

Now at last we come to the *Mont Genèvre* (6083 ft.), a pass which may be described as having long been the principal means of communication between France and Italy. It leads from Briançon at the head of the Durance valley to Susa and Turin. As both slopes were colonised by the Romans, we are not surprised to find that this pass plays a great part in the older records. Most probably it was crossed by Hannibal, while it was certainly crossed by Cæsar in B.C. 58 on his way to the conquest of Gaul, and hence the title of 'Alpis Julia' conferred on it by Livy. Towards the end of the fourth century the route over it was described very minutely by Ammianus Marcellinus, this being by far the most detailed notice of any Alpine pass written in what may be still called 'Roman times.' Even Strabo (first century A.D.) devotes more space (though that is not saying much) to this pass than to any other. About 574-5 it was the pass over which the wild Lombards surged towards Gaul, and over which the Franks drove them back, and occupied the valley of Susa. It was, in fact, the shortest route by which to reach Lombardy, and was perhaps taken by Charles the Great in 773 when bound on his first visit to Italy, which was to be rendered so memorable by the complete subjugation of the Lombards (774). But the Mont Genèvre suffers from the drawback that on the W. side the crossing of a second pass (whether the direct *Col du Lautaret*, 6808 ft.,—connected with the Mont Cenis route by the *Col du Galibier*, 8721 ft., now traversed by a military carriage road—or the roundabout route by Embrun and Gap

—both certainly Roman roads) is necessary in order to reach the Rhone valley, so that its star paled before that of the Mont Cenis (accessible direct by a single valley) in the eighth century. Hence the Mont Genève gradually fell to the position of a specially French pass, especially after the Dauphiné was joined to France (1349), for that event brought to the crown of France wide regions (the valley of the Dora Riparia till close on Susa, and that of the Chisone till near Pinerolo) lying on the E. slope of the pass, and communicating with France most easily by it. (The Mont Cenis was, of course, from the eleventh century till 1860 wholly in the hands of the House of Savoy). A single Pope (Innocent II., in 1131) and a single Emperor (Frederick I., in 1177, on his way to his coronation as king of Arles) are recorded to have crossed our pass. It was by it that Charles VIII. in 1494 went to invade Italy, and in 1629 it was crossed by Louis XIII., accompanied by Richelieu. Even after the loss of the regions on the E. (exchanged for Barcelonnette in 1713) the Mont Genève retained its special character as *the* French pass across the Alps, and troops passed over it in 1859 on the way to Magenta and Solferino. Nowadays (despite the fact that it is crossed by a fine carriage road, finished in 1806) the Mont Genève is but little known to foreign travellers, but it was once in the very first rank of Alpine passes, though its historical importance has diminished steadily, and it was practically quite superseded by the Mont Cenis, of which the Savoyard side became French in 1860. Yet it is low and easy, while on the summit there is a village inhabited all the year round. By means of the *Col de Sestrières* (6631 ft.) there is an alternative route from Césanne at the N. foot of the Mont Genève, that runs down the Chisone valley past Fénestrelles to Pinerolo.

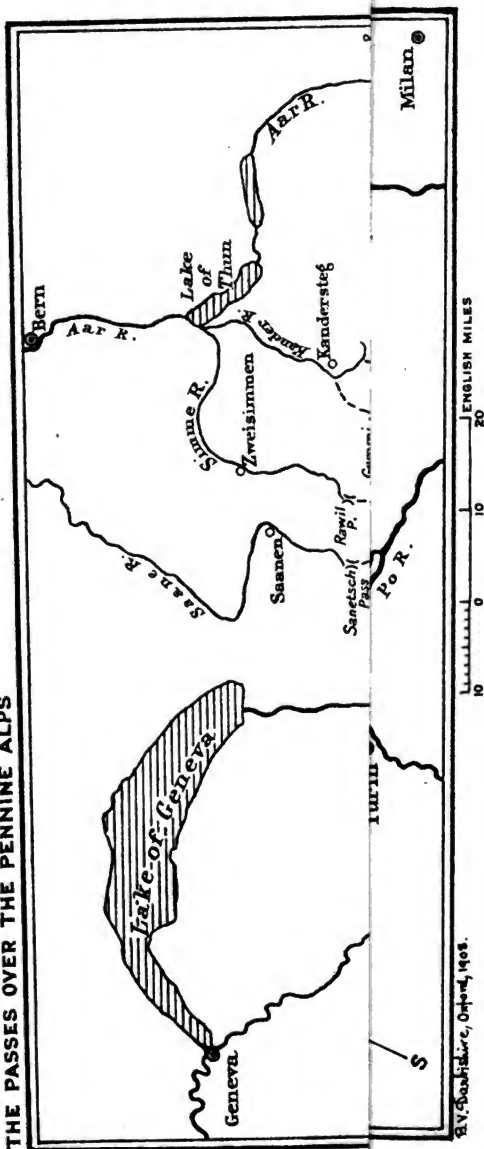
Compared with the Mont Genève the *Mont Cenis* (6893 ft.) has quite a short history, though by means of the narrow valley of the Maurienne (or of the Arc) it can be reached direct from Geneva, Lyons, or Grenoble, while on the other side its route joins that of the Mont Genève at Susa. The name of 'Cenis' appears first in 739 as that of some pastures, no

doubt those on the great plateau of the pass. But as the name of a pass it occurs first in 756, on the occasion of the crossing by Pippin. That king *may* have crossed it in 754—he certainly then crossed some pass from the Maurienne to Susa, but no name is given to it. In the opinion of the present writer the usual pass before the eighth century from the Maurienne to Susa was the very easy mule pass of the *Col de la Roue* (8419 ft.), which is a little S.W. of the so-called Mont Ceniz Tunnel, and leads in five hours past the famed local sanctuary of Notre Dame du Charmaix from Modane to Bardonnèche and on to Oulx, on the Mont Genève route: this pass was certainly frequented in the Middle Ages (it is mentioned by name as early as 1189) as it is at present by the natives. In any case, the Mont Ceniz soon became the fashion, and was the pass usually traversed by the Frankish kings on their way to Lombardy. Between 814 and 825 Louis the Pious founded the Hospice on the summit (it was refounded by Napoleon I.), and in 877 Charles the Bald died on his way over the pass. With the single exception of the Great St. Bernard no pass in the Western Alps was so often crossed by the Emperors. Among others, the passage in January, 1077, by Henry IV. (on his way to Canossa), with his wife and suite, is noteworthy by reason of the very vivid account of the adventures of the party given by the chronicler, Lambert of Hersfeld. The ladies were placed on skins and so drawn down the icy slopes towards Italy. Naturally the princes of the House of Savoy frequently crossed our pass, which lay wholly within their dominions and led direct from their early capital, Chambéry, to their later (from 1559 onwards) capital, Turin. In February, 1476, the crossing was effected by Yolande, Dowager-Duchess of Savoy (sister of Louis XI.), hastening to the help of her ally, Charles the Bold, Duke of Burgundy. This passage is remarkable, because we first then hear of the practice of ‘ramassier’ (later called ‘glisser à la ramasse’), that is ‘tobogganing’ on wooden sledges, guided by men called ‘marons’ (the name is almost always reserved to the men employed on the Mont Ceniz and on the Great St. Bernard),

by which the descent was made very quickly (even in summer) from the pass to Lanslebourg. Later on, most travellers (let Montaigne in 1581 be specially named) employed this speedy method, which probably was one of the minor attractions of the pass. The local saying was 'marrons de la Novalèse, mulets de Lanslebourg' (Novalesa being the great Benedictine monastery between Susa and the pass, which flourished from 726 to 1855). In fact, we may say confidently that if a traveller going from France to Italy does not name the route he took across the Alps, it is almost certain that it will turn out to have been the Mont Cenis. Yet there was only a mule path across the pass till Napoleon (*the* great road-builder in the Alps) had the carriage road constructed between 1803 and 1810. For a few years, 1868-1871, a light railway (the first of its kind), called the 'Fell Railway' from the name of its inventor, was worked (by English engine-drivers) right across the pass. But by previous contract it was unfortunately destroyed when the tunnel was opened in September 1871, though it must be carefully recollected that this tunnel is pierced at a spot seventeen miles W. of the Mont Cenis, and beneath the Col de Fréjus (8294 ft.), so that it is accurately named 'Tunnel de Fréjus.' At Bramans, about half-way between Modane and Lanslebourg, the main Arc valley is joined by the little known Ambin glen (split into three arms), from which lead various passes. One of these, the *Col d'Etache* (9144 ft.), leads over to Bardonnèche, and another, the *Col d'Ambin* (9364 ft.), to Exilles. But more important historically is the most northerly of the three arms of this glen, that of Savine. From it the *Petit Mont Cenis* (7166 ft.) leads over to the Mont Cenis plateau, and, while certainly crossed in 1689 by the Waldensians, has rather singularly been also claimed for Hannibal. This is also the case (according to a recent French writer) with the *Col de Clapier* (8173 ft.) that leads from the head of the Savine arm to Susa. But the present writer, who has several times visited this valley, is still quite incredulous as to the passage of the Carthaginian army in this part of the Alps, though 'white rocks,' etc., are easily found there, as elsewhere. Much higher

THE PASSES OVER THE PENNINE ALPS

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H.V. Sandilands, Oxford, 1908.

up the Arc valley than Bramans is Bessans, whence the *Col de l'Autaret* (10,073 ft.) leads N. of the Rochemelon over to Lanzo, above Turin.

The next great pass on our list is the Little St. Bernard. But before speaking of it let us mention two other passes. One, just W. of the main divide, is called the *Col du Mont Iseran* (9085 ft.), and leads from the head-waters of the Arc (the Maurienne) to those of the Isère (the Tarentaise). It is noteworthy in that it was crossed in 1689 by the Waldensians, under Henri Arnaud, on their return (the 'Glorieuse Rentrée') to their Piedmontese valleys. In the early nineteenth century a legend sprang up that near the pass rose the lofty Mont Iseran (13,271 ft. in height), one of the giants of the Alps, and this peak actually appears in 1845 and 1858 in the publications (book and map) of the Sardinian engineers, though its existence was disproved, by a personal examination of the region in 1859-1860 by two English travellers, Mr. William Mathews and Mr. J. J. Cowell—there had simply been a misplacement of other lofty (though not so lofty) peaks in the neighbourhood. The other pass, the *Col du Mont* (8681 ft.) leads from near the W. foot of the Little St. Bernard by the Val Grisanche to the Aosta valley: it is indeed a kind of 'under study' of the Little St. Bernard, and formerly was much used by the natives as it is easier than the other pass: in 1792-1800 (especially in 1794) it was the scene of several bloody combats between the French and the Piedmontese. From the very head of the Isère valley the easy glacier pass of the *Col de la Galise* (9836 ft.) gives access to the very head of the Orco glen, whence the grassy *Col de la Croix de Nivolet* (8665 ft.) leads to Aosta.

The *Little St. Bernard* (7179 ft.) has a remarkably uneventful history. It was certainly crossed by Cæsar on his last journey from Gaul to Rome before the outbreak of the civil war in B.C. 49, and probably shared with the Mont Genève the honour of being the regular route of Roman officials going to or returning from Gaul. But its later history is most meagre, though one might have expected that a pass which joined two

of the oldest possessions of the House of Savoy (the valley of Aosta and the Tarentaise) would have played a more prominent part. Probably the fact that it was midway between the Mont Cenis and the Great St. Bernard was disadvantageous to it, as also the very steep ascent on the S.W. slope and the great gorge on the N.E. slope. It is true that a Hospice existed on the summit from the eleventh century onwards. But while the earlier mediæval title of the pass (as of its neighbour) was 'Mons Jovis' it later (1181) took that of 'domus sancti Bernardi montis Jovis.' From about 1466 the Hospice was served by the Austin canons of the Great St. Bernard, and dependent on the house there, while about 1500 the pass is called the 'Mont Jouvét' to distinguish it from the Mont Joux, or the Great St. Bernard—the one pass thus rising and the other falling. About 1750 the Hospice was handed over to the care of the military and religious order of SS. Maurice and Lazarus, which still holds it, but it was not till about 1871 that the carriage road across the pass was completed.

Nearly opposite the Little St. Bernard, across the upper Val d'Aosta, is the *Great St. Bernard Pass* (8111 ft.), perhaps the Alpine pass which is best known by name to non-travellers. It seems to have been frequented even before the days of the Romans, and has never since then ceased to be one of the great thoroughfares across the Alps. The Hospice was probably originally placed in the early ninth century in the village of Bourg St. Pierre, at the foot of the last ascent on the Swiss side. But by 859 it probably existed on the summit of the pass, while it was refounded there (after the ravages of the Saracens from La Garde Freinet had ceased) by St. Bernard of Menthon (d. about 1081). Perhaps since 1154, certainly since 1215, it has been served by Austin canons (who formerly held the Little St. Bernard Hospice, and still hold that on the Simplon), whose mother-house is at Martigny. One of the earliest detailed itineraries across it which have come down to us is that of Sigeric, Archbishop of Canterbury, who went over the pass in 990, for the Saracens had been driven away after their memorable capture (973) of Majolus, the abbat of Cluny,

on his journey. The canons at one time held many lands in England: in 1177 the chapel of Romford is mentioned among their possessions, while Henry II. gave them the hospital of Hornchurch or Havering in Essex, which was acquired from them by William of Wykeham, Bishop of Winchester, for the benefit of his great foundation (1379) of New College, Oxford, which still owns the property and the advowson of the living. The pass was a favourite one with kings and pilgrims on their way to Rome. In 773 Bernard, the uncle of Charles the Great, crossed it, and was later followed by many Emperors, ending with Sigismund in 1414, if indeed we should not extend the list to Napoleon's famous passage in May, 1800, as he put himself forward as the successor of the mediæval Emperors. Nowadays the spread of mountain railways has taken away from the practical importance of the Great St. Bernard, which is mainly frequented by Piedmontese labourers who, on their way to find work for the summer in Switzerland, cross this pass in spring and in autumn. Yet it is surprising that the carriage road over our pass was completed so very recently—the bit from the last village on the Swiss side in 1893 only, while that from the last hamlet on the Italian side was not opened till 1905. The *Col Ferret* (8311 ft.), soon to be traversed by the highest carriage road within Switzerland, is nearly parallel to the Great St. Bernard, as is the *Col de la Seigne* (8242 ft.) in relation to the Little St. Bernard.

We must now turn eastwards along the great divide, which is crossed at various points by some of the oldest glacier passes known, in particular the *Col de Fenêtre* (9141 ft.), the *Col de Collon* (10,270 ft.), the *St. Théodule* (10,899 ft.), and the *Schwarzberg Weisssthor* (11,851 ft.): all these passes were well known in the first half of the sixteenth century, the Théodule having probably been traversed in the thirteenth century already. But, however interesting, they cannot be called great historical passes, as practically they were only used by the natives. Far other is the case with two other passes, both situated at the head of the Saas valley—the *Monte Moro* (9390 ft.) and the *Antrona Pass* (9331 ft.)—both leading to the Ossola valley,

a little below Domo d'Ossola, the former by the Val Anzasca, and the latter by the Val Antrona. Both are mentioned in the thirteenth century, and in 1440 (by 1403 already in the case of the Monte Moro) we hear that a mule track had been constructed over both. The Monte Moro (the origin of the name is uncertain, though it certainly has nothing to do with 'Lodovico il Moro' of Milan) served mainly as the means of communication between the Italian-speaking colony at Saas (the traces of which can still be found by a close examination of the local names) dating from about 1250, and the German-speaking colony at Macugnaga (which still flourishes there) dating from between 1262 and 1291—both were established by the local lord, the Count of Biandrate or Blandrate, who by marriage had acquired lands in the Vallais. The Antrona Pass, on the other hand, was for centuries the great commercial route from the Upper Vallais towards Milan, for the Simplon was far more difficult of access. A great landslide in 1642 nearly destroyed the whole of the village of Antrona. But the paved track (bits of which are still visible) was restored once more in the early eighteenth century, while in 1790-2 we hear of large imports of salt from the Milanese across the pass, this being one of the chief commodities in which trade was carried on. But the construction of the carriage road over the Simplon (1801-5) put an end to the prosperity of our pass, which retains its character as an 'historical pass,' though it can no longer be called a 'great' pass.

The name of *Simplon* appears first in 1235, if we take count only of authentic documents. It is then applied to the Hospice on the pass (6592 ft.), though the village of that name on the S. slope of the pass is not mentioned till 1267, when, however, it had a church (not merely a chapel), so that it must have existed for some time already. Probably its settlement is another case of that curious and widely diffused wave of colonisation from the Upper Vallais in the thirteenth century. It is said that Odo, Archbishop of Rouen, crossed it in 1254, and Pope Gregory x. in 1275. A good deal of detailed information has been preserved to us about the tolls, and other

arrangements (especially towards the end of the thirteenth century) for the transport of goods across the pass, which was always in the hands of the Vallaisans (especially of the Bishop of Sion), and is often called the 'mons Briga' (from Brieg at its W. foot). But the Hospice, which had belonged to the Knights Hospitaller of St. John of Jerusalem, gradually disappears from sight in the fifteenth century, probably because the Antrona Pass in the fifteenth and sixteenth centuries was at the height of its prosperity. Besides, the path over the Simplon was very dangerous and exposed on both sides, even if the great gorge of Gondo was avoided by crossing two low passes (between which lay the Zwischbergen valley) to the Val Bognanco, which leads straight down to Domo d'Ossola. In the fifteenth and early sixteenth century the Simplon was often crossed by the Vallaisans and Swiss while striving (1410-1515) to seize or hold the Val d'Ossola. The old Hospice was sold in 1655 to the Stockalper family of Brieg, which entertained travellers. But this pass never really rose much, if at all, beyond a route of local importance, till Napoleon cast his eyes upon it and realised its strategical importance. He caused the present carriage road to be constructed across it between 1801 and 1805, and built a set of barracks on the summit, which forms the present New Hospice (the Old Hospice is that built by the Stockalperts), which in 1825 was bought by the Austin canons of the Great St. Bernard, and is still occupied by some members of that community. In 1802 Napoleon detached the Vallais from the Helvetic Republic, raising it into a separate state as the 'Rhodanic Republic,' and annexing it (1810) to the French Empire as the 'Département du Simplon,' though the region finally became Swiss in 1815. Very recently a tunnel has been pierced beneath the pass (it was opened in the spring of 1906), and so the Simplon has become a great international route, and has thus acquired far more importance than it had ever possessed previously.

II.—THE CENTRAL ALPS

The Central Alps are crossed by comparatively few Great Passes. Indeed, one can only reckon a good half-dozen (the St. Gotthard, the Lukmanier, the San Bernardino, the Splügen, the Septimer, the Ofen, and the Umbrail). The passes leading to the Engadine have merely a local importance, save the Ofen and its continuation, the Flüela. But, to make up for this paucity of passes over the main chain, there are a number of routes over the ranges that rise to the N. of the main divide, and often rival (if they do not surpass) it in point of height.

The two passes over the main crest that we meet with a little to the N.E. of the Simplon may be dismissed briefly. One is the *Albrun Pass* (7907 ft.), leading from the Binn glen of the Upper Vallais to Baceno in the Val d'Ossola, above Domo: it has always been a smugglers' pass, being off the main route, while in 1425 it was crossed by the Swiss when making one of their raids on Domo d'Ossola. The other pass, the *Gries Pass* (8098 ft.), has a small flat glacier on the summit, which is, however, easily traversed by beasts of burden. It leads from near the very head of the Upper Vallais, through the Eginen glen (whence the *Nufenen Pass*, 8006 ft., affords a convenient short cut to Airolo, at the S. foot of the St. Gotthard) to the very head of the Tosa valley (called here the Val Formazza, and lower down the Val d'Ossola) and to the splendid Tosa Falls. No doubt it was over the Gries that the still existing German-speaking colony in the Val Formazza came in the thirteenth century. Then, too, the Gries Pass served, in combination with the Grimsel (the old paved track from the latter still exists and reaches the upper Rhone valley close to the entrance of the Eginen glen), for the transport of merchandise between Italy and the Bernese Oberland. In 1397 representatives from the Oberland met those from the Val d'Ossola at Münster (the chief village in the uppermost reach of the Upper Vallais) in order to arrange a commercial treaty for the trade between their respective districts, including the question of making or keeping up

the mule paths across the two passes. No doubt this commerce grew much when the Val d'Ossola was held by the Swiss, though even later (that is, after 1515) it went on for a time. But then it passed away to the Antrona Pass, and, in some degree, to the Simplon Pass. Yet even nowadays the Gries is often crossed by the natives of both slopes, who thus save the great détour by the Simplon.

As we have just spoken of the Grimsel, it is perhaps best to clear off that pass, and four others, all traversing the range N. of the Vallais, before going on to *the* pass in the Central Alps, the St. Gotthard.

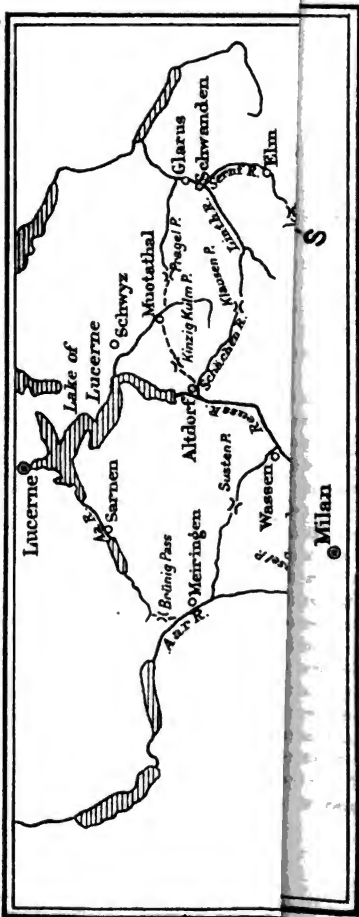
The *Grimsel Pass* (7100 ft.) is the easiest route from the Bernese Oberland to the Upper Vallais, and so has been frequented from very early times. In 1211 it was crossed by troops, and again in 1419, in both cases by the Bernese making a raid into the Vallais. The famous Hospice at the foot of the last ascent on the N. slope of the pass is first mentioned in 1479, but undoubtedly existed long before, for in 1382 the men of Hasle bought from the Bernese family of Bubenberg the Alpine pastures at the head of the Aar valley—both Hospice and pastures remained the property of the Hasle folk till 1902, when they were sold to the then lessee of the Hospice. For centuries a mule path alone traversed the pass, which was (as pointed out above) the first link in the trade route between the Oberland and Italy (over the Gries). But in 1895 the splendid new carriage road across it was opened—this descends (for the benefit of summer travellers) to the foot of the Rhone Glacier, whence the Furka Pass (7992 ft.) leads over to Uri; but the old historical paved mule path still exists from the top of the Grimsel to the Rhone valley at Obergestelen, nearly opposite the Eginen valley, through which runs the Gries Pass route.

A good way to the W. of the Grimsel the main ridge of the Bernese Alps is crossed by several minor historical passes—such as the *Sanetsch Pass* (7331 ft.), leading from the head of the Saane or Sarine valley to Sion, which is also attained by the *Rawil Pass* (7924 ft.) from that of the Simme. More important historically are two passes some distance to the E. of these—the *Lötschen*

Pass (8842 ft.), and to its W. the far better known Gemmi Pass (7641 ft.) The Lötschen Pass leads from the Rhone valley by the Lötschen valley to Kandersteg, above Frutigen; at Kandersteg the route joins that over the Gemmi, which has come from the Rhone valley through the Dala glen and past the celebrated hot springs of Leukerbad. Both passes are mentioned early. The Lötschen Pass had a cross on it (and so must have been well known) in 1352, and was probably the route by which (as narrated in Chapter VII.) a colony from the Lötschen valley was transported early in the fourteenth century to the head of the Lauterbrunnen valley. Though there is a glacier on the summit of the pass, it is very easily crossed, which accounts for the fact that in 1384 and again in 1419 and in 1656 battles between the Bernese and the Vallaisans took place on the summit of the pass. As the Lötschen Pass was for centuries much easier to cross than the Gemmi, all local commerce passed over it. In 1698, after many delays, a paved mule track was constructed on the Bernese slope of the pass, and traces of it are still visible. But the Vallaisans would not build the road on their side of the pass, fearing that thus Protestant influences might penetrate into their region. After the Gemmi path was rendered better, the Lötschen Pass lost much of its practical importance. But one of the most recent schemes for piercing a tunnel beneath the Bernese Alps has selected the Lötschen Pass, which may thus, in a way, regain much of its old position. We hear of the *Gemmi Pass*, under the Romance name of 'Curmilz' or 'Curmyz' in 1252 and 1318, from which it appears that the great plain extending N. from the crest towards the Frutigen valley, and the Hospice or inn thereon situated (now known as Schwarzenbach) were already within the limits of the Vallais (though physically within those of Berne) as they are to this day. As early as 1544 we have a most thrilling account (by Sebastian Münster, the geographer) of his traverse of the pass, and of the horrors of the bad path from Leukerbad to the pass. Later we read that by this bad track a horse could only carry half a proper load, while every cow (on its way to the pastures) required a man to itself. Hence in 1740-1 a band of Tyrolese workmen

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H.V. Parbishing, Oxford, 1908.

was employed to improve the path (*not* to construct it for the first time, as is often said), and that path, with further improvements, is the winding track so well known to every Swiss traveller. In 1742 the inn at Schwarenbach was built, but was destroyed next year by an avalanche, and reconstructed next year in a more sheltered position. It should perhaps be added that the derivation of the name of the pass from 'gemitus' (groans) has no authority to support it and is purely fanciful. Probably the name is a Teutonised form of the Romance name under which the pass is first mentioned.

We now come to the *St. Gotthard* (6936 ft.), which, ever since it was opened up, has been the principal pass in the Central Alps. Its topographical position is perhaps unequalled save by that of the Brenner. A single river-valley (that of the Reuss) leads up to it on the N. slope from the plains of N. Switzerland, while another valley of similar character (that of the Ticino) leads down on the S. slope straight to the Italian Lakes and to the rich plains of Lombardy. At its N. foot easy passes facilitate communications with the head of the Rhine valley (by the *Oberalp Pass*, 6719 ft.) and with that of the Rhone (by the *Furka Pass*, 7992 ft.), while lower down the Reuss valley the *Susten Pass* (7422 ft.) leads W. to the Bernese Oberland, and the *Klausen Pass* (6404 ft.) E. to Glarus. On the S. side the routes from the great Rætian passes join that of the St. Gotthard as this nears the Italian plains. One great physical drawback the St. Gotthard has, however, always suffered from, and that, no doubt, accounts for the relatively late appearance of the pass in history—both the Reuss and the Ticino valleys are very rugged and very narrow, and so the tracks through them are exposed to great dangers, though to realise this nowadays one must not content oneself with merely sitting in a through train from Lucerne to Milan, but cross the pass on foot. These obstacles could only be overcome by the aid of time and patience, but when overcome, the prosperous future of the pass was secured. Its fortunes, too, have had an enormous influence on those of Lucerne, its starting-point on the N., for the opening of the mule path (about 1293), of the

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carriage road (1820-1830), and of the tunnel (1882) have marked successive great steps forward in the commercial importance of that town.

Despite all endeavours it has not yet been found possible to discover a certain mention of the pass before 1236, when Albert, abbat of Stade (not far from Hamburg), in his Chronicle, describes the route over the pass which he himself seems to have taken on his return from Rome (which he had reached by way of the Mont Cenis). The route is indicated, and the pass is mentioned by Abbat Albert under the name of 'mons Elvelinus, which the Lombards call Ursare' (Ursern). The name St. Gotthard first occurs in the great enumeration (drawn up in the first years of the fourteenth century) of the Habsburg possessions in Switzerland and Alsace, and the mule path over (as well as the earliest traders) is first mentioned in 1293, while the chapel and Hospice, or toll-house, on the summit are not expressly mentioned till 1331. Such are the certainly ascertained facts—there have been many conjectures and ingenious theories as to all these matters, but none has as yet even attempted to push back the opening of this pass earlier than 1218. Very probably, nay, certainly, the various facts mentioned existed earlier, but one cannot assign to them any earlier certain and fixed dates. But there is no doubt that in the fourteenth century the pass was well known and frequently traversed, being the great route by which merchandise passed through Switzerland between Germany and Italy, while in the fifteenth century it much facilitated the conquest of the Italian bailiwicks by the Swiss of which we have spoken in Chapter VII. It is noteworthy, however, that no mediæval Emperor seems ever to have crossed our pass, the historical importance of which, till our own time, has been commercial and not political (save to a very small extent), in striking contrast to the Mont Cenis.

The greatest obstacle on the N. side of the pass was the Schöllenen gorge just below Andermatt and above Göschenen (it is avoided by the railway). Not to speak of the legends connected with the old Devil's Bridge (which fell in 1888), the problem was how to overcome the rocky slopes above it, in

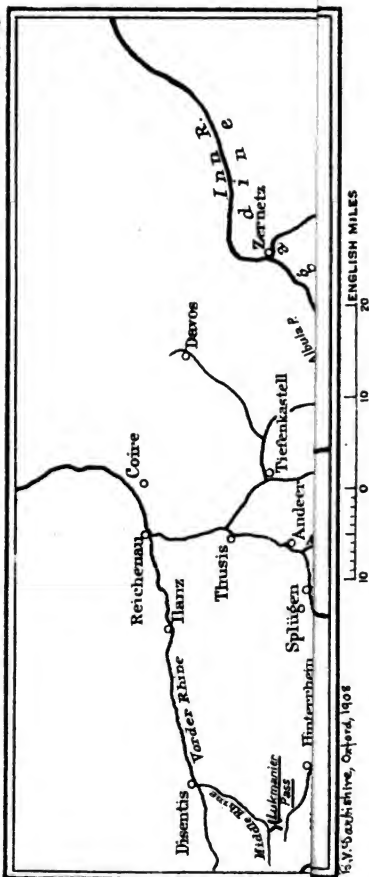
order to reach the basin in which Andermatt stands. In the Habsburg 'terrier' of the early fourteenth century (see above) we find a mention of the 'stiebende Brücke' (the 'spray-washed' bridge), which was a narrow wooden terrace about 200 ft. long, and suspended, at a great height above the rushing Reuss, by chains on the precipitous rocky mountain face. Save a rough path above the other bank of the Reuss, this frail bridge (which had to be constantly renewed) was for ages the sole means of access to Andermatt direct from Lucerne. It hung on the outer wall of the short tunnel called the 'Urnerloch,' which was only pierced in 1707, and made wide enough for carriages in 1830. Schiller, in his play *William Tell* (1804), first confounds the 'stiebend Brücke' with the Devil's Bridge, and then makes the 'Urnerloch' exist at the same time—two poetical anachronisms. As early as July 25, 1775, an enterprising English traveller, Mr. Greville, the mineralogist, succeeded in crossing the pass in a light chaise, without taking his conveyance to pieces: Saussure records how he met this adventurous spirit the same evening at the Hospice. But it was not till 1820-1830 that the carriage road was constructed over the pass to meet the rivalry of those then built over the San Bernardino and the Splügen, while the great railway tunnel was pierced in 1872-1880, and, with the railway lines leading to it, was opened for traffic in 1882.

The name of the pass is taken from that of a Bishop of Hildesheim, who died in 1038 and was canonised in 1132. The only reason that has as yet been discovered for this curious dedication is the fact that in Milan the festival of that saint (May 4) was (according to the city statutes of 1215) a 'red letter' day, on which courts did not sit, while in the same city there is a church (built 1328-1339) bearing his name, San Gottardo in Corte (in the ducal palace). A better Hospice on the summit was built in 1431 in order to house the Archbishop of Milan (to whom the S. side of the pass, as well as part of the N. slope, belonged) on his way to the Council of Bâle, and in 1496 we hear that it was inhabited by a lay brother. St. Charles Borromeo (Archbishop of Milan, 1560-1584) intended

to enlarge both, but it was only in 1623 that a better house was built for the priest, and in 1683 a new Hospice, which was intrusted to the care of a few Capuchins, of whom all travellers speak with grateful recognition. An avalanche in 1775 destroyed all the buildings save the Hospice itself, while the reconstructed buildings, besides the chapel, perished at the hands of the French in 1799. The new Hospice was only erected in 1834, but was burnt in 1905, though no doubt it will soon be rebuilt. The hotel opposite it was built in 1867, and did not perish in the fire of 1905. From Airolo, at the S. foot of the pass, the easy *San Giacomo Pass* (7573 ft.) leads over to Tosa Falls on the Gries Pass route, and thus connects the St. Gotthard with the Simplon.

This is perhaps the best place at which to insert a short notice of some minor lateral passes in the Central Alps, which indirectly owe their historical fame to the St. Gotthard. In late September 1799 Suvoroff, with a considerable (21,000 men) Russian army, succeeded in forcing the passage of the St. Gotthard against the French. He desired to join the other Russian army, at or near Zürich. But, having reached Altdorf, he found his way blocked, for the French had seized all the boats on the Lake of Lucerne, and no road then existed along the E. shore of the lake. He was therefore forced to cross (September 27-8) the *Kinsigkult Pass* (6811 ft.) to the head of the Muota valley. But his progress down that valley towards Schwyz was stopped after a bloody battle with the French. So he had again to 'double back' and to cross (last days of September and first of October) the *Pragel Pass* (5099 ft.) to Glarus, hoping thence to follow the Linth or Limmat valley direct to Zürich. But he was once more foiled by the French commanders and compelled to cross yet a third pass (October 5-6), the *Panixer Pass* (7897 ft.), in order to gain the Rhine valley, above Coire, and so was able to rejoin his friends at Feldkirch, two days later. None of these passes (all well known to the present writer) is in itself really difficult, save the steep N. side of the Panixer, but they offer great obstacles to the passage of a considerable army, harassed by

THE PASSES FROM COIRE TO MILAN



a watchful enemy, and much hindered by the bad weather of a stormy autumn, so that Suvoroff's feat is one of the most remarkable recorded in the military history of the Alps.

The next pass over the main chain on our list is the *Lukmanier* (6289 ft.), leading from the great Benedictine monastery of Disentis, near the head of the Vorder Rhine valley, by the Middle Rhine valley and the Val Blenio to Biasca, on the St. Gotthard route. But, save for a short time in the nineteenth century (1839-1880), when it was doubtful whether the great railway tunnel beneath the Central Alps should be pierced under the Lukmanier or the St. Gotthard, the Lukmanier has always been overshadowed by its greater neighbours, so that its real historical importance relates to the period when these rivals were little known or traversed by bad roads or paths. However it was crossed by Otto I. in 965 and by Henry II. in 1004, as well as by Frederick I. in 1146 and again in 1186, and by Sigismund in 1431 (perhaps in 1413 also)—we thus again come across the Emperor whom we heard of on the Great St. Bernard. About 1374 the reigning abbat of Disentis (who in 1570 became a Prince of the Empire) built two Hospices (there were five in all) on the route, one, that of Santa Maria, being on the summit of the pass—it still exists as a modest inn, and the pass is thence sometimes named the 'Pass of St. Mary'; another name for the pass is the 'Pass of St. Barnabas,' owing to its close connection with the see of Milan, to which the Val Blenio, like the Val Leventina, belonged, and also to the dedication of one of the Hospices, this one being situated at Casaccia on the E. slope of the pass. But the foundation of these Hospices by the abbat of Disentis emphasises the character of our pass, as, after the opening of the St. Gotthard, a feeble rival of that great highway, but especially useful for the Rätians as a means of communication with their Swiss allies in the Italian bailiwicks, after their conquest in the fifteenth century. In 1581 St. Charles Borromeo crossed the Lukmanier. As early as 1780 the abbat of Disentis began the construction of a road across his pass. But there were formidable technical difficulties in the gorge through which

(or above which) one must mount from Disentis to Curaglia, the first village. Finally, a remarkable road through this gorge and across to Olivone, at the head of the Val Blenio, was constructed 1871-7, but, though well worthy of being seen, it has failed to attract tourists. The Lukmanier is now quite off the main line of traffic, serving only as a local route, the St. Gotthard having drawn to itself most of the traffic (never a very great stream) that dribbled over the Lukmanier.

We come next to the three passes which lead direct from Coire to Italy, which is reached at Como by the San Bernardino, but at Chiavenna by the Splügen and the Septimer.

The *San Bernardino* (6769 ft.) route, like that of the Splügen, follows the course of the main or Hinter Rhine nearly to its sources, and then turns S. to cross the Alps. Throughout the entire Middle Ages it bore the name of the 'mons avium,' 'Vogelberg,' or 'Monte Uccello' (*i.e.* the 'pass of the birds,' in three languages), and to this day there rises some way to its W. a peak called the Vogelberg, while on the E. the pass is overhung by another point, named the Pizzo Uccello. But some time in the second half of the fifteenth century, this name gave way to the present one, given in honour of San Bernardino of Siena, who had wandered through the N. parts of Lombardy as a missionary preacher and was canonised in 1450, six years after his death—a chapel on the S. slope of the pass was dedicated to him. It is possible that the left wing of the Frankish army crossed this pass in 590 on its way to attack the Lombards. More certain is it that in the winter of 941 Willa (wife of Berengar, Marquess of Ivrea), though far advanced in pregnancy, fled across it, to escape from Hugh, king of Italy. Much later, in the winter of 1799, Lecourbe, with a French army, traversed the pass. But no doubt, it, like the Splügen, was kept for long in the background through the difficulties of getting through or round the Via Mala gorge, above Thusis. Probably it served only the local traffic between the German-speaking colony at the sources of the Rhine with the Italian bailiwicks held by the Swiss, especially after, in 1496, the Val Mesocco (on its S. slope) came into the hands of the Rätians,

who thus had direct access to the St. Gotthard route. In 1818-1823 the present fine carriage road was built over the pass, and, like that of the St. Gotthard, lies for its whole length within Swiss territory. Most of the expenses were borne by the king of Sardinia, who wished to secure for himself a road across the Alps, which should not be in the hands of the Habsburgers.

A little to the E. of the San Bernardino is the *Splügen Pass* (6946 ft.). Though possibly mentioned by the Peutinger Table (fourth century) under the still unexplained name of 'Cunu aureu,' this pass has scarcely had a more eventful history than the San Bernardino, both having been overshadowed (till carriage roads were built across them) by the Septimer. Its mediæval name was the 'Urschler' (mount of bears), perhaps given in contrast to the 'mount of birds' or the San Bernardino. The first rough road which traversed the S. bit of the Via Mala was constructed as far back as 1473, apparently with the desire to set up a rival to the route over the Septimer, that was entirely in the hands of the Bishop of Coire. But the Via Mala was only rendered practicable throughout, when, 1818-1823, the road was constructed over the pass itself; the chief difficulty, apart from that gorge, was the Cardenello gorge on the S. side, where, in the early winter of 1800, the French, under Marshal Macdonald, encountered very great difficulties. This road increased the number of travellers who crossed the pass (the commercial importance of which was never great despite the almost total absence of tolls), for, even to-day, it is (with the exceptions of the rather longer San Bernardino and the much longer Lukmanier) the one carriage road by which it is possible to go from Rætia (the Grisons) to Italy, crossing *one* ridge only (the roads through the Engadine involve the passage of two ridges, while the Septimer has never yet obtained a carriage road). The valley of San Giacomo, on the S. side of the pass, is now Italian, but from 1512 to 1797 (with Chiavenna) it belonged to the Three Rætian Leagues who had taken it from the Milanese—it had formed part of the Cisalpine or Italian Republics from 1797 to 1805, and of the Napoleonic

kingdom of Italy from 1805 to 1814, when it fell (with Chiavenna etc.) to the Habsburgers of Milan, who only lost it in 1859 to the Sardinian king soon to rule over united Italy.

By far the most important historically of all the Grisons Alpine passes is the *Septimer* (7582 ft.), though nowadays it is hardly known even by name. Yet in 1128 it was reported (not quite accurately) to be the mountain in which both the Rhine and the Inn take their source; it is mentioned in the thirteenth century by the poet Gottfried of Strassburg in his *Tristan*, and in 1330 it was said to mark the limit between Germany and Lombardy, while early in the fourteenth century it was noted as one of the boundaries of the possessions of the Habsburgers. In itself it is an extremely easy pass, leading from Bivio-Stalla (not far from the W. foot of the Julier Pass) to Casaccia, at the W. foot of the Maloja, and the highest village in the Val Bregaglia, down which one goes direct to Chiavenna. It is also easily reached from both sides. On the N. slope, there were two routes from Coire to Bivio-Stalla—the more arduous led by a path from Thusis over the slopes N. of the gorge now known as the Schyn Pass to Tiefenkastell, where it was joined by the easier, which had come from Coire past the twelfth century Premonstratensian monastery of Churwalden and over the Lenzerheide (a great tract of heath), 5089 ft.; both routes thus avoided the horrors of the Via Mala by which the Splügen and the San Bernardino were necessarily attained. From Bivio the slope giving access to the pass is gradual, while the descent on the S. side to Casaccia, though steeper than the ascent, is short and direct, the fertile Val Bregaglia being soon gained. It was thus not *necessary* to cross more than one ridge on the journey, while (and herein lay the great practical advantage of the pass) the entire route from Coire till near Chiavenna (as well as *to* that town and down to the head of the Lake of Como, from 1512 to 1797) was in the hands (directly or through his vassals) of the Bishop of Coire, the most powerful of the many Rætian feudal lords. It was therefore the interest of the bishop to facilitate the transit across this pass, as thereby he (or his guarantees)

obtained more revenues from tolls and way dues. It is therefore not surprising to hear that in 1359 the reigning bishop (who happened to be the Imperial Chancellor) prevailed on the Emperor Charles iv. to issue a formal prohibition to use any other Alpine road in the region but this.

The pass is mentioned in Roman times by both the Antonine Itinerary and the Peutinger Table. The first *recorded* passage was that of Landulus, Bishop of Treviso, in 895, while in the same year we hear of two Roman musicians, who crossed on their way from Rome to St. Gall (to improve the church music there), one of whom fell very ill on the way over the pass. Many Emperors traversed this pass, the number being only exceeded by those who took the route by the Brenner or by the Great St. Bernard. In fact, in the earlier Middle Ages the Septimer was *the* great route from Germany into Italy. The first mention of a Hospice (never a large one) on the pass dates from 831, but it was refounded in the early twelfth century by the Bishop of Coire, and rebuilt in 1542: it is now in ruins, though there is some idea of reconstructing it for the use of skiers, the new sort of winter pilgrims in this region. Remains of a solidly built paved track are found at various points on the route over this pass. It was long thought that they dated back to Roman times, but it has now been shown that they formed part of the new cart track constructed in 1387 by Jacob von Castelmur, a high episcopal official (and grantee of the tolls over the pass) in the Val Bregaglia. The tolls levied on this route produced great sums. But naturally, after the construction, in the first half of the nineteenth century, of good carriage roads over the Splügen, the San Bernardino, the Julier, and the Maloja, the great advantage of the Septimer disappeared, and the pass is now visited only by a few curious wanderers. Yet, in its time, it was more than a rival of the greatest Alpine passes.

As hinted above, the passes leading to and from the Engadine have merely a local interest, save the Ofen, with the Flüela, its continuation, and (in the Eastern Alps) the Reschen Scheideck. Even the opening (1903) of the railway under

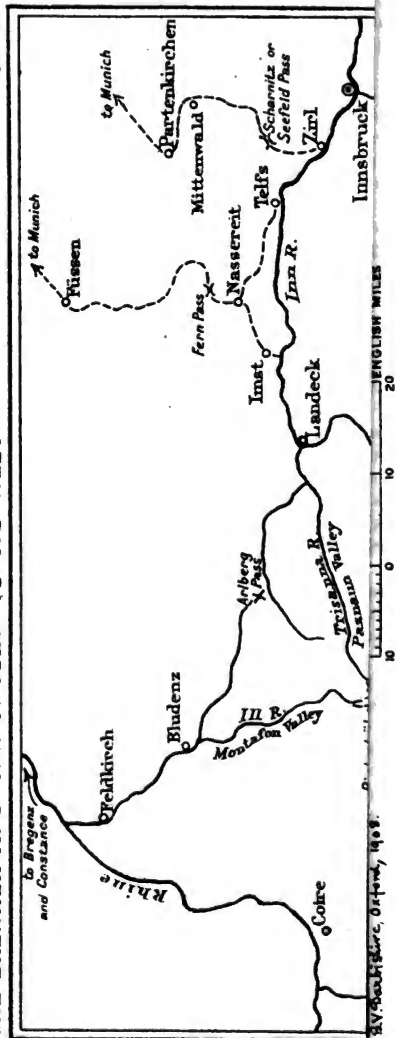
the *Albula Pass* (7595 ft.) meant simply an easier route to the Engadine, and not the opening of a great international route across the Alps, and the same will be true when a line is constructed over the *Maloja Pass* (5935 ft.) from the head of the Engadine to Chiavenna. As there still exist many misapprehensions on the subject, it may be worth while to explain the real historical origin of the two rude pillars called Julius' columns, which stand on the summit of the *Julier Pass* (7504 ft.). It is known that in 1396 and 1407 a single column rose here, as a boundary stone, that between 1538 and 1572 it was broken into three bits, that one of these bits disappeared in some unknown fashion, and that some time between 1618 and 1703 another bit was set up as a second column—these dates are taken from contemporary writers who either visited the pass themselves or had trustworthy reports from those who had been there. The natural continuation of the Julier is either the Maloja to Chiavenna, or the *Bernina Pass* (7645 ft.) to the Valtelline.

In the tangled country E. of the Bernina Pass the *Passo di Val Viola* (7976 ft.) leads from near the summit of the Bernina Pass to Bormio. But more important historically, in connection with Rohan's campaign of 1635 against the Imperial troops, are the passes leading from the Livigno valley (still Italian, though on the N. slope of the Alps and sending its waters by the Spöl to the Inn at Zernetz) in various directions—the *Forcola di Livigno* (7638 ft.) S. to the Bernina Pass, the *Casana Pass* (8832 ft.) W. to Scanfs, in the Upper Engadine, and the *Alpisella Pass* (7497 ft.) E. past the sources of the Adda and through the Fraële glen to Bormio.

Let us now go on to the *Ofen Pass* (7071 ft.) which leads from Zernetz in the Lower Engadine to the Münster valley, and so on to the Vintschgau or upper valley of the Adige in the Tyrol, while from Süs, in the Lower Engadine, about four miles below Zernetz, the *Flüela Pass* (7838 ft.) leads over to Davos, and then down the Landquart valley to the Rhine valley, which is gained about nine miles above Coire. These two passes thus formed a direct and comparatively easy route from

THE BRENNER AND THE PASSES TO ITS WEST

NO 6



By Bartholomew, Oxford, 1908.

Coire to the Tyrol, even after, in 1652, the Lower Engadine ceased to be Tyrolese, and became Swiss. By means of the second pass in particular, the Bishop of Coire was long able to maintain his authority in the Vintschgau, and in the Münster valley. This route was possibly taken in 1212 by the Emperor Frederick II. (who more probably went by way of the Tonale, Aprica, and Septimer Passes), and by Sigismund in 1413. But of course it was rather out of the way, lying as it did between the far more frequented tracks over the Septimer, the Umbrail Pass, and the Brenner. The Ofen Pass takes its name from some iron mines ('ovens' or 'Fuorn,' furnaces) worked near it in the sixteenth century and earlier, but is often wrongly called the Buffalora Pass, that name properly belonging to another pass (7723 ft., also called *Giufplan*) that leads to Bormio through the Fräele glen. The road over the Ofen was built in 1870-1, and that over the Flüela in 1867, but the inn near the Ofen Pass was well known in the sixteenth century, while the Hospice on the Flüela is also far older than the carriage road. Still farther down the Lower Engadine is the easy glacier *Fermunt Pass* (9193 ft.), formerly much frequented and leading from Guarda in the Lower Engadine to the head of the Montafon valley in the Vorarlberg, and so to Bludenz on the Arlberg route, or across the lower Bielerhöhe Pass (6631 ft.) to the Tyrolese Paznaun valley, and so to Landeck.

Our last pass in the Central Alps is the *Umbrail Pass* (8242 ft.), which of old bore also the names of 'mons Braulius' (from St. Braulius, Bishop of Saragossa, in the seventh century) and of 'Juga Rætica,' as well as of 'Wormserjoch' (*i.e.* the pass to Bormio, the German name of which is 'Worms'). It leads from the head of the Adige valley or the Vintschgau by the Münster valley to Bormio, at the head of the Adda valley or the Valtelline. On the S. side a short descent gives access at the fourth Cantoniera to the route over the *Stelvio Pass* or *Stilfserjoch* (9055 ft.). But as the N. slope of the Stelvio is very steep and rugged, while that of the Umbrail is comparatively easy, the last named was, throughout the Middle Ages, the main

route from the Vintschgau direct to the Lake of Como. The Stelvio was, indeed, crossed now and then by armies (1496, 1631, 1634,) but served as a pass only in case of necessity. The rôles of the two passes were reversed, at any rate for a time, when the Austrian Government (which had in 1814 received the Valtelline, while in 1762 it had parted with the upper Münster valley to Switzerland) built (1820-5) the magnificent carriage road over the Stelvio, which is still the loftiest carriage road in the Alps. Much more recently the Swiss Government has constructed (1900-1) a good carriage road over the Umbrail from the Münster valley to the fourth Cantoniera on the Stelvio, such a road having been planned (it is said) by Napoleon, who selected that route rather than the Stelvio: this road is the third highest carriage road in the Alps (it is the highest in Switzerland), that over the Col du Galibier (8721 ft.), in the Dauphiné Alps, coming between it and the Stelvio. By a curious coincidence none of these three passes traverses the main ridge of the Alps, each leading over one of its lateral spurs. It should be borne in mind that between 1762 (purchase of the upper Münster valley) and 1797 (loss of the Valtelline), the whole way over the Umbrail belonged to the Three Rätian Leagues, that is, practically to Switzerland. Now, of course, since 1859, the S. slope of that pass, as well as of the Stelvio, is Italian. The Umbrail Pass served mainly the local trade between the Vintschgau and the Valtelline. But it obtained considerable political importance during the long struggle, 1620-1639 (briefly noticed in Chapter VII.), for the Valtelline, the valley which enabled the Habsburgers of the Tyrol to communicate directly with the Habsburgers of Milan. Naturally, the commercial importance of both the Umbrail and of the Stelvio was practically destroyed when in 1864-7, the wholly Austrian railway was opened over the Brenner Pass, as the Vintschgau trade of course flowed E.S.E. down the Adige valley to Botzen, on that line, while that of the Valtelline (Italian since 1859) as naturally found its outlet westwards in the direction of the Lake of Como. But in the Middle Ages the Umbrail was *the* great route between the aforesaid regions, and indeed to districts

more to the N. by way of the Reschen Scheideck and the Arlberg Passes, of which we will speak presently.

III.—THE EASTERN ALPS

In this division of the great Alpine chain the *Brenner Pass* (4495 ft.) occupies a position of far greater importance than does any single pass in either the Western or the Central Alps. Many of the other passes in the Eastern Alps (such as the Reschen Scheideck, the Arlberg, the Tonale, the Aprica, even the Ampezzo, and the Plöcken) stand to it in the light of feeders or branches, and can scarcely claim an independent position of their own. The case only alters as we get still farther E., when the Alps spread out (to use a comparison already employed in these pages) like the sticks of a fan, so that the traveller, after leaving the plains of Italy, and before reaching those of Austria, has to cross three ridges—the first by the Ampezzo, the Monte Croce (Plöcken), the Pontebba (Saifnitz), or the Predil Passes; the second by the Radstädter Tauern; and the third by the Pyhrn Pass or through the Lueg gorge. Finally, at the extreme E. limit of these ridges we find the Birnbaumer Wald and the Semmering, both rather methods of getting round the last spurs of the Alps than of crossing them, and so parallel with the route from Genoa to Marseilles along the edge of the Mediterranean, rather than with Alpine passes strictly so called.

The history of the Brenner Pass is almost co-extensive with that of the Eastern Alps, or of the relations between Germany and Italy, whether they be looked at from a political, a commercial, or a military point of view. By far the lowest of all the Alpine passes across the main chain of the Alps, reached on either side by straight-drawn valleys leading up to a single ridge, it forms a natural highway over the Alps. Its authentic recorded history starts with the passage (B.C. 15) of Drusus, the stepson of Augustus, on his way to conquer the northern Barbarians, and among them the tribe of the Breones, or Breuni,

which gave its name for ever to the pass, and had its name embalmed in the verses of Horace. Later on, the Brenner became a great route by means of which the Romans pursued and attained many military and commercial successes. Most probably it was the pass over which the Barbarians poured in the fifth century towards the fertile plains of Italy, and (as pointed out at the commencement of this chapter) the route 'per Alpes Noricas' (our pass without a doubt) was expressly mentioned by Charles the Great when elaborating in 806 his scheme for the division of his Empire among his sons. Still later, it was over the Brenner that the vast majority of the Emperors went on their way to or from Rome, so that on at least one-half of these expeditions (dating from the ninth to the fifteenth centuries) the route selected was that over our pass. Gradually, as minor feudal lords gave way to the dynasty of the Counts of the Tyrol, the Brenner became more and more a specifically Tyrolese pass, especially when in 1363 the county of the Tyrol passed into the hands of the powerful family of the Habsburgers. Being thus held by a single dynasty, capable of pushing its interests, this great highway, though it lost in a way its character as a route open to all nations, yet prospered because of the attention that its new owners devoted to improving the means of communication across it. The quaint old track, constructed (or at any rate greatly improved) between 1314-17 by the enterprising Heinrich Kunter, burgher of Botzen, meant that the old Roman path high above the gorges between Klausen and Botzen was abandoned in favour of a path in the Eisack valley itself. Yet this new track was very rough and bad, so that not unfrequently travellers preferred the short cut from the Brenner over the *Jaufen Pass*, 6870 ft. (called, like the Great St. Bernard, 'mons Jovis'—in the Middle Ages the name took the form of 'Jouven'), which was probably known to the Romans, to the Adige valley that was reached at Meran. Further, the rise of the Venetian power on the mainland in the early fifteenth century threatened the prosperity of the Brenner, for the route naturally preferred by the Venetian rulers was that over the *Ampezzo Pass* (5066 ft.), by Belluno, the Piave valley,

and past Cortina to Toblach, close to the *Toblach Pass* (3967 ft.) leading from the Brenner route to the head of the Drave valley. That road kept the merchants on their journeys for the longest distance in Venetian territory, while it was early passable for light carriages and carts. Hence from 1483 onwards the old Kunter track was greatly improved by Sigismund, the reigning Count of the Tyrol, gunpowder being employed to remove various obstacles, so that this track also became passable for carriages and carts. His efforts were seconded, towards the N., by the rulers of Bavaria. But it was not till much later, in 1772, that a modern carriage road was constructed across the pass. Naturally, after the Habsburgers secured (1803, finally 1814) the territories of the Bishops of Trent and Brixen, still more attention was paid to our pass, which now became a most important means of communication between Austria proper and the Milanese and the Veneto, held from 1815 onwards by the sovereigns of Austria. Yet when this political convenience had ceased to be of practical interest (the Milanese and the W. Veneto were lost to Austria in 1859 and the E. Veneto in 1866), the commercial advantages of the pass were such that, between 1864 and 1867, a railway was constructed across it, this being the first line carried over the Alps, while the carriage road of 1772 had also been the first of its kind.

Something must now be said as to the side passes which we have described above as 'feeders' or branches of the great highway of the Brenner.

(a) To the W. there are two pairs of passes, each item of which taken alone has but local importance, though if the two composing each pair are crossed, a route is more or less made to the other side of certain mountain chains.

The first pair is made up of the *Tonale Pass* (6181 ft.) and of the *Aprica Pass* (3875 ft.). The road over the former leaves the Adige valley a little to the N. of Trent in order to mount the Noce valley (called in its lower half the Val di Non or Nonsberg, and in its upper half, the Val di Sole or Sulzberg) past Cles (where falls in the road from Botzen over the *Mendel Pass*, 4462 ft.) to the pass (not far from which, on the old

track, is the Hospice of St. Bartholomew, founded in 1127), whence it descends to Edolo, at the head of the Val Camonica or of the Oglio, that runs down to the Lake of Iseo. From Edolo the low Aprica Pass gives access to the Valtelline, which is reached a little below Tirano. Any one who combines these two passes finds that he must cross yet another, such as the Septimer, in order to reach the N. slope of the Alps. But formerly the practical convenience of this route was that it lay entirely, save the bits near Edolo (which are in the Bergamasca, and so were Venetian 1428-1797, and Austrian 1815-1859) within the dominions of the Prince-bishops of Trent and Coire. Hence it would naturally be taken by any traveller who found the Brenner blocked to him, but enjoyed the friendship of either or both. Such seems to have been the case of the Emperor Frederick II. in 1212, who apparently crossed these two passes on the way from Trent to Coire, being accompanied in his hurried journey by the bishops of these two cities. Apparently Frederick I. in 1166 did the same, but Charles IV. in 1355 crossed the Aprica only, while in 1327 Louis the Bavarian went from Trent to Bergamo over the Tonale.

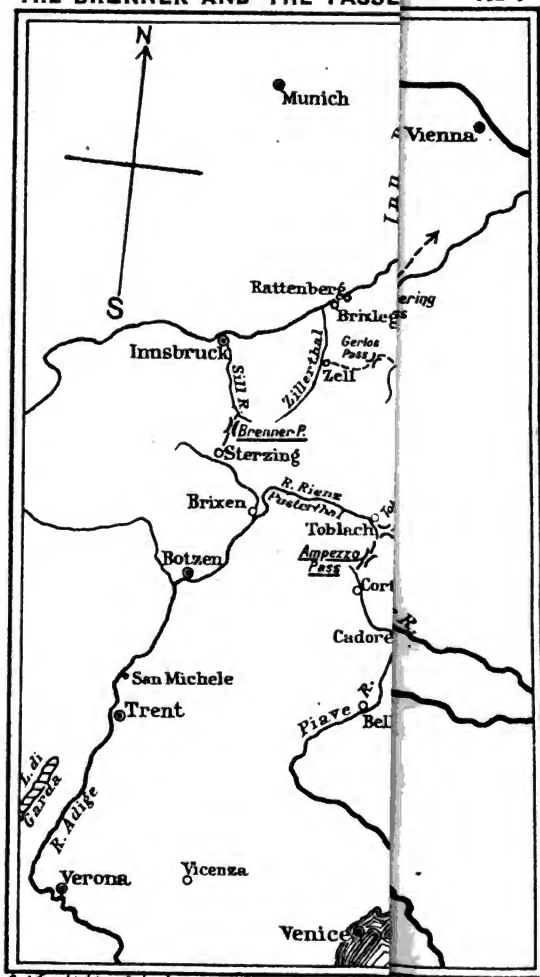
The second pair of passes is formed by those of the *Reschen Scheideck* (4902 ft.) and the *Arlberg* (5912 ft.). The former leads from Botzen past Meran through the Vintschgau or upper Adige valley to the Inn valley, that is descended to Landeck on the Arlberg route, which thence bears due W. and reaches the Rhine valley at Feldkirch, some way S. of Bregenz. The former pass taken alone is simply a parallel way to that over the Brenner, while the second, if taken alone, is the direct road from Innsbruck to the Vorarlberg. Combined, they form a rather more direct route, from Botzen to Constance, than the Brenner. The Reschen Scheideck is now usually known by that name. But formerly it was often called the 'Malserheide,' from the great heathy tract on its S. slope, above the ancient town of Mals, while another name, that of Finstermünz Pass, was derived from the narrow gorge at its N. foot, through which it was necessary to pass from Martinsbruck (now the last hamlet in the Swiss Lower Engadine, but till 1652 in the Tyrol) to

Pfunds (at its E. end), now reached direct from the pass itself by a splendidly engineered road, carried high above the gorge. An ancient tower in the gorge proves its early importance, as formerly one *had* to pass it, along the bank of the wild Inn, here enclosed between two lofty rock walls. The Hospice of St. Valentine on the Reschen Scheideck was founded in 1140, but on the very summit of the pass there is now a village, Reschen, inhabited all the year round. This pass was of historical importance in the Middle Ages, when the Bishop of Coire was struggling to maintain his footing in the Vintschgau against the rising power of the Counts of the Tyrol. On the other hand, the Arlberg (first mentioned in 1218 as a frequented pass) acquired more importance at a later period, especially after 1363, when the Habsburgers obtained the Tyrol, and then added to their domains first (1375) Feldkirch, then (1394) Bludenz and the Montafon valley, and finally (1451 and 1523) the county of Bregenz, thus establishing their power firmly in the district 'before' the Arlberg Pass (when looked at from the point of view of a traveller on his way to Innsbruck) on the right bank of the Rhine, between Coire and the Lake of Constance. It has been contended that the Arlberg was traversed by a Roman road, but this view does not seem to be supported by sufficient evidence. Yet as early as 945 Berengar II., king of Italy, seems to have crossed both our passes on his way from Swabia to Botzen. A mule path was built over the Arlberg in 1309, and the Hospice of St. Christopher founded in 1385, the chief utility of the pass being the transport of salt from the mines of Hall near Innsbruck. This path must have been improved by 1414, when we hear that the Pope John XXIII., on the way to the Council of Constance, had the misfortune to have his light carriage upset, and so was thrown out into the snow (it was the month of October). In 1499 and again during the Wars of 1632-4 efforts were made to improve the track, but they were simply sporadic and led to no permanent results. The actual carriage road was constructed at intervals between 1785 and 1824 (though improved in 1848-9) to meet the competition of the

Swiss, who desired to divert traffic from Feldkirch to the Thurgau, while the railway which burrows beneath the pass was built in 1880-4. But it may be stated generally that, till recently, the Arlberg was mainly a 'salt pass,' and comparatively little attention was paid to the maintenance of the track, particularly on the W. or Vorarlberg side. Two curious results of this want of enterprise may be noted. On the one hand, the rise of the flourishing cotton-spinning industry in the Vorarlberg (the raw material coming from Trieste) dates from the final construction (from 1785 onwards) of a road over the pass. But on the other hand, the bad state of that road (especially on the W. side) is credibly believed to have been largely responsible for the steady refusal (even as lately as 1848 and 1859-1860) of the Vorarlbergers to consent to a close political union with the Tyrol, with which they are only joined by a slight administrative tie, though reasons of practical convenience would seem to make the complete incorporation of the Vorarlberg with the Tyrol a very desirable object.

The Arlberg Pass, besides directly connecting the Inn and the Rhine valleys, and so the routes that pass by Innsbruck and Coire, join both to the Bavarian plains and Munich by means of the *Fern Pass* (3970 ft.) and of *Scharnitz* or *Seefeld Pass* (3874 ft.), which thus act as 'feeders.'

(b) To the E. of the Brenner there is another pair of side passes, of which we must now speak. Of one of these, the *Ampezzo Pass* (5066 ft.), leading from Belluno by Cortina to Toblach, mention has been made above. Its importance rose with the advance of Venetian power on the mainland in the early fifteenth century, for it was the most direct route from Venice towards the N.W., and Central Germany. As it was early made passable for light carriages and carts, it was a formidable rival for long both to the main line of the Brenner, S. of Brixen, and to the Pontebba Pass on the E. However, it was all but exclusively a commercial pass, over which the spoils of the East went from Venice to Central Germany, and never seems to have possessed any great military or political importance. After the Ampezzo valley fell into the hands of the Habsburgers in 1517



B.V. Barbishire, Oxford, 1908

the whole pass became more and more Tyrolese, as both slopes were thenceforth held by that powerful dynasty. The Ampezzo Pass has become of importance to pleasure travellers only within the last thirty or forty years, the fine carriage road having been constructed in 1829-1830.

Farther to the E. is the second pass which must be considered under this head, the *Plöcken Pass*, *Kreuzberg*, or *Monte Croce* (4462 ft.), leading from Lienz on the upper Drave past Mauthen and Tolmezzo to Udine (Friuli), and to be carefully distinguished from another Monte Croce Pass (5374 ft.) a little to its W., and leading from Innichen in the upper Drave valley to Cadore and Belluno. The Plöcken Pass is an odd little pass that never seems to have met with due recognition. Possibly this was because the traveller who had come over it from Udine to Mauthen in the Gail valley (Carinthia) found himself obliged to cross yet another ridge by the *Gailberg Pass* (3182 ft.) in order to gain the upper Drave valley, and then yet a third ridge, the *Toblach Pass* (3967 ft.) to Toblach, if he was bound for the Pusterthal and the Brenner route. Another reason for the neglect of the Plöcken Pass was the fact that its neighbours, the Brenner, the Ampezzo, and the Pontebba, were too strong for it. Yet our pass is described in the Antonine Itinerary, while to this day on or close to its summit there are still to be seen and deciphered no fewer than three Roman inscriptions, dating from the second to the fourth century of the Christian era. About 567 it was crossed by the Gaulish poet, Venantius Fortunatus, who calls the second passage (the Gailberg) from the Gail valley to that of the Drave by the name of the 'Alpis Julia,' a denomination that for once can be satisfactorily explained, as it is taken from the Italian name (Val Zellia) of the Gail valley. The main pass is named 'mons Crucis' in documents of 1184, 1234, and 1296, which show that it was used by traders who desired to avoid the tolls levied on those crossing the Pontebba Pass. It played a small part in various local wars in the fifteenth, sixteenth, and seventeenth centuries, though it was honoured by the presence of but a single Emperor, Rupert, in 1401. It never had much commercial importance, save when the neighbouring passes

were closed for one reason or another, but such as it had was ruined by the construction first of the carriage road (1836), and next of the railway line (1873-9) over the Pontebba Pass. Of course, in 1866, the S. slope of the pass passed with the rest of Friuli from Austria to Italy.

The Plöcken Pass, of which we have just sketched the history, crosses the main ridge of the Carnic Alps, but as it is rather a 'feeder' of the Brenner than an independent pass, we have considered it in connection with the Brenner. Some way farther to the E. lie the two passes which properly lead over the same main ridge (the watershed of the Alps and the most southerly of the three ridges into which the Eastern Alps here split), from the S. into Carinthia—the *Pontebba*, Pontafel, or Saifnitz Pass (2615 ft.), and (slightly to its E.) the *Predil Pass* (3813 ft.). The routes over the two passes unite on the N. slope at Tarvis, and continue together to Villach in Carinthia. But on the S. side the Pontebba Pass is reached from Udine, through territory entirely Italian since Friuli was lost in 1866 to Austria, by way of the Fella or Ferro valley, commonly called the Canale valley, whereas the route on the S. slope of the Predil Pass lies wholly within Austrian territory (the county of Görz) up the Isonzo valley, in which there is a village named Canale, a fact that often leads to a confusion between the two passes. Again, the Pontebba Pass is just within the Carnic Alps, while the Predil Pass is just within the Julic Alps, the former rejoicing in a splendidly picturesque railway (constructed between 1873 and 1879), the latter having a carriage road only. These and various other factors (such as the greater height of the Predil and its more exposed situation) have brought it about that the Pontebba Pass has always been more important historically than the Predil. Indeed the Predil comes into prominence only between 1319, when the citizens of Cividale obtained leave from the Bishop of Bamberg (who soon after the erection of the see in 1007 had obtained from its founder, the Emperor Henry II., the entire Carinthian slope of our two passes) to build a road (actually constructed 1326-7) over the 'new and unusual route' of the Predil, and 1348, when a great landslide blocked for some years access to both passes on the N. side. When the effects

of this misfortune were remedied, came the long strife between the Habsburgs (who had obtained Carinthia in 1335) and their vassal, the Bishop of Bamberg, against the Patriarch of Aquileia, who (till he lost his temporal power to Venice in 1418-1420) naturally favoured the Predil rather than the Pontebba. But when the county of Görz came in 1500 to the Habsburgs, the fate of the Predil was sealed. On the other hand, the Pontebba route is described in the Antonine Itinerary (it is possibly even dimly alluded to on the Peutinger Table), while a milestone found on the summit, and inscriptions elsewhere on the route, show that it was a frequented route in Roman days. Possibly crossed in 884 by Charles the Fat, it was later used by the few Emperors who came into these regions—Henry IV. in 1077 and 1097, Conrad III. in 1149, Frederick II. in 1236, and Charles IV. in 1354 (perhaps in 1368 also), as well as by a portion of Frederick I.'s army in 1158, while in 1797 Napoleon himself went over it on his bold campaign in Austria, for Masséna had secured the pass by force of arms.

The commercial importance of the Pontebba Pass was also great from early times, for in 1184 and in 1234 the Patriarchs of Aquileia made treaties with (respectively) Count Henry of Tyrol and Count Meinhard of Tyrol and Görz with regard to the tolls levied on this route, while numerous other documents show what a considerable amount tolls brought in. The various stations on this road are also carefully enumerated in the itineraries of several Patriarchs of Aquileia in the early thirteenth and fourteenth centuries. One particularly interesting point must be noted. The Pontebba was the chief trade route from Venice towards the N.E., and no doubt it was the Venetian trade which mainly contributed to the commercial importance of the pass. The inhabitants of the smaller towns N. of Udine very naturally compared the deep-cut trench of the Fella leading up to the pass with one of the canals of Venice, and this name 'canale,' half understood by the German traders, was turned by them into a proper name 'Canal,' and the route described as 'via per Canales.' This name first occurs in 1158 and 1234, but later is quite the usual one for the pass, which was also described as 'per clusam,' *i.e.* through the *cluse* or narrow

gorge, which gave its name of Chiusaforte to the village at the S. entrance of the gorge of the Fella, where was the principal toll-house on the S. side of the pass.

Coming now to the central of the three ranges which are formed by the E. spurs of the Eastern Alps—the Tauern range—we find that though several of the passes across it, now distinguished by special names as varieties of the Tauern passage (e.g. Mallnitzer Tauern, Hohe Tauern, Velber Tauern), were probably known in Roman times, yet only the two most easterly passes, which are also far lower than the rest, have any real general historical importance. Of these this pair, the *Radstädter Tauern* (5702 ft., now traversed by a carriage road), forms part of the main route from Klagenfurt to Salzburg, and is therefore indicated on the Peutinger Table, while Roman milestones have been found near it; but it is impossible to say with certainty that this way was ever taken by any of the Emperors. The *Sölkscharte* (5873 ft.), more to the E., is possibly indicated in the Antonine Itinerary, but has always been overshadowed by the *Radstädter Tauern*, and to this day is traversed by a mule path only.

In the most northerly of the three ridges which in the E. portion of the Eastern Alps separate Italy from Austria, the *Zug Pass* (1700 ft.) is a huge, narrow gorge (carriage road through it) which forms the natural continuation of the way over the *Radstädter Tauern* to Salzburg, and is perhaps alluded to on the Peutinger Table. Similarly, the *Pyhrn Pass* (3100 ft.) is the natural continuation of the *Sölkscharte* route to Linz: on its N. slope stood formerly a Hospice, which was founded about 1190 by the Archbishop of Salzburg and the Bishop of Bamberg jointly, and gave its name to the village of Spital—beneath the pass a railway line was opened in 1906. But these two passes, like the *Fern Pass* (4026 ft.) and the *Scharnitz* or *Seefeld Pass* (3874 ft.)—both leading from the Bavarian Highlands to the Inn valley, a little above Innsbruck—are simply ways across (or through, by the means of deep gorges) the most northerly low limestone ridge of the Alps, which gives access to the real Alps, and properly forms merely the foot-hills of the great range.

To complete our view of the Great Historical Passes of the Alps we have now only to glance at the two routes which, like

that by Turbie along the shore of the Mediterranean in the Western Alps, skirt rather than cross the most easterly spurs of the Alps—the Birnbaumer Wald and the Semmering Pass, the two routes being connected by the *Loibl Pass* (4495 ft.), which leads from Klagenfurt, situated on a small affluent of the Drave, to Krainburg (E. of Laibach) on the Save.

The *Birnbaumer Wald* is not properly a pass, but simply a route across the great wooded Carniolan limestone plateau, which rises to a height of 2897 ft., and by which a traveller can go from Laibach in Carniola past Wippach to Görz on the Isonzo, N.W. of Trieste and N.E. of Aquileia: there is now a railway from Laibach past Ober Laibach (the Roman *Nauportus*) to Loitsch, whence a carriage road is carried on to Görz, where another railway line is taken to Trieste. This route is described or mentioned in the Antonine and Jerusalem Itineraries, while the Peutinger Table names it the 'Alpis Julia,' and Strabo calls it 'mons Ocra.' Situated at the S.E. angle of the Alpine chain, it offers a short and easy way into Italy, which was taken by several of the Barbarian tribes which successively invaded that fair land, e.g. the Quadi, the Ostrogoths, the Lombards, etc. The Birnbaumer Wald is the true 'Alpis Julia,' a name which has been also applied to the Mont Genève (because of Julius Cæsar), to the Julier Pass in the Upper Engadine, and to the Gailberg, N. of the Plöcken Pass. But it is perhaps going too far to claim (as does a recent German writer on the Alpine region) that for the Romans the Mont Genève and the Birnbaumer Wald were by far the two most important Alpine passes from a political point of view, since both opened up to them a great field for colonisation and for conquest, though there is undoubtedly a considerable element of truth in the statement.

Last of all on our list is the *Semmering Pass* (3215 ft.), which forms the direct route from Vienna to Graz, the capital of Styria (and on by Marburg and Laibach to Trieste), and, in a way, balances the Birnbaumer Wald, for it is at the N.E. angle of the Alps as the latter is at their S.E. angle. A remarkable railway (superseding the carriage road, ended in 1728) was constructed over the Semmering between 1848 and 1854, the first line over the Alps, which are pierced by a tunnel 282 ft.

below the actual summit of the pass. Some 600 ft. below the pass, on the S.W. or Styrian slope, at the hamlet now called Spital, Ottakar v., Marquess of Styria, founded, about 1160, a Hospice which rendered great services till 1331. No doubt this easy and not very elevated route must have been known in earlier days, for the valleys, first of the Mur, then of the Mürz, lead up to it from Styria, and make it the natural road from that province to Austria. For that very reason, probably, it is not so often mentioned in historical documents as we might expect. But it seems possible that in 1097 the Emperor Henry iv. crossed the Semmering on his return by the Pontebba Pass to Germany, and pretty certain that in 1368 Charles iv. took this route on his way from Vienna to Italy also by the Pontebba Pass.

The above sketch of the fates of the Great Historical Passes of the Alps shows that the celebrated passes of antiquity and of the Middle Ages are by no means always those which are most frequented at the present day. In the Western Alps the Mont Genève gave way in the early Middle Ages to the Mont Cenis, which in turn has been entirely superseded by the railway called after it, though built a good bit to its W. The Great St. Bernard, however, has never lost its supremacy, despite the fact that it has only just obtained a carriage road over it, while the mediæval Simplon will gain fresh vigour (having previously put the Antrona Pass out of the field) by reason of the new railway recently pierced beneath it. In the Central Alps the rise of the St. Gotthard, though it began late, has been steady and uninterrupted, and that pass has now quite extinguished those in Rætia (the Lukmanier, the Septimer, the Umbrail, etc.), which had a great reputation in their day. In the Eastern Alps the Brenner occupies, in this respect, a position similar to that of the Great St. Bernard, its natural advantages being even greater. But most of its 'feeders' have now but slight local importance, while the railways over the Semmering and the Pontebba serve only the outskirts of the Alps, and so do not rival or compete with the Brenner.

CHAPTER IX

THE EXPLORATION OF THE HIGH ALPS UP TO THE END OF 1865

A MOUNTAIN Peak is made by Nature, but a mountain Pass has been created by Man. In other words, Peaks are natural phenomena, while passes are not 'Passes' till crossed by man, however clearly the depressions may have been indicated by Nature. Now men do not ascend high peaks without some special inducement, though they do cross glacier passes of the easier kind for purely practical reasons; and this chapter is concerned only with high peaks and glacier passes. But the history of the exploration of the lofty peaks in the Alps is far easier to write than that of the glacier passes in the main chain. Yet there can be no doubt that Passes were traversed before Peaks were climbed. While natives went over passes for practical reasons, it happened but rarely before the appearance of travellers that they tried to ascend the peaks of their valley. Hence, while in order of time we must commence any history of the exploration of the High Alps with some notice of the glacier passes therein, it is far harder to get information as to these than as to peaks. The mention of a glacier pass on a map, or the indication thereon of a track across over it, implies that some one has really gone over it. On the other hand, the naming of a peak in a narrative or on a map does not in any way signify that it had then been climbed, for names were attributed to peaks when looked at from below, though passes were not named till actually traversed, and even then not at once, for the early writers simply say that

'the mountains can be overcome between such and such places,' but do not, till quite a late date, give to the passage any special name.

Now it is estimated that before 1600, about twenty glacier passes were known in the Alps, that about twenty more were added to this list before 1700, and about twenty-five more before 1800—in all say sixty-five, and this number reckons as glacier passes such cols as the Monte Moro, the Muretto, and the Gries Pass. We must patiently gather together scattered allusions to passes, for the maps, even up to 1800, name but a small number of the glacier passes that had certainly been crossed before that date—for example, Weiss' Atlas of Switzerland (1786-1802) names but four in the whole of Switzerland, while Peter Anich's Atlas of the Tyrol (1774) indicates eight within the limits of that province only, and not in the Eastern Alps as a whole. Yet in the French and Italian Alps a considerable number of real glacier passes are expressly mentioned before 1800. Thus in 1673, in a document enumerating the limits of the commune (the most extensive in France next after that of Arles) of St. Christophe, in the Dauphiné Alps, no fewer than five glacier passes are named: Beaurain's map (1741) of the diocese of Grenoble marks four of these, and adds three new ones, while Bourcet's map (1749-54) gives five glacier passes, one of which is first indicated on Paulmy's map of 1752. Yet even to this day the glacier passes of this region are but little frequented by travellers, and none are known to have actually been *crossed* by any traveller before 1834. Hence it is a mere accident which has preserved to us so many details as to the passes of a remote district, an accident which shows that in other regions many glacier passes may well have been known to the natives, though not mentioned in any documents as yet unearthed. Thus in 1206 the Bishop of Aosta (who was also lord of Cogne) granted to certain men of Cogne some pastures on the further side of the Col de Teleccio, which hence must have been crossed before these pastures could be utilised. About 1250 the Count of Biandrate, holding the valleys on either side of the Monte Moro Pass, arranged that his serfs at Macugnaga should (as

they actually did) colonise the valley of Saas, but the pass itself is not alluded to. Again, in 1252, the Col de Fenêtre de Bagnes (leading from Aosta to the Val de Bagnes) must have been in use, for in that year Amadeus IV., Count of Savoy, granted to the lord of Quart in the Aosta valley the pastures in the upper portion of the Val de Bagnes. Once more, the Futschöl Pass (from the Lower Engadine to the Paznaun valley—both regions then Tyrolese, as the latter is to this day) was certainly known in 1383, for in that year Galtür, in the Paznaun valley, was permitted, owing to the difficulty of communication in winter, to have a priest for itself, to serve the church built in 1359, although hitherto it had been included in the parish of Ardez, in the Lower Engadine. On the other hand, some glacier passes are very clearly indicated by a name of some sort, even at a very early date. Thus in 1352 and 1380 we hear of the 'cross on the snowy mountains' between the Lötschen and Gastern valleys; while the pass (now best known as the Lötschen Pass) is called 'Gandegg' in 1366, as in 1384 and in 1419, when battles took place there between the Vallaisans and the Bernese.

The fact that for centuries Savoy and Piedmont were under the same rule is probably the reason why, in the last sixty years of the seventeenth century, no fewer than six glacier passes are mentioned, on maps or in documents, over the great chain that forms the watershed between the Mont Cenis and the Little St. Bernard. Five of these passes are, indeed, included in a very remarkable report (first published in full by the present writer in 1904 in his work *Josias Simler et les Origines de l'Alpinisme jusqu'en 1600*, pp. 269*-327*) as to the valley of Aosta. It was drawn up by one P. A. Arnod, a ducal official, for the use of his master, the Duke of Savoy, with special reference to the necessity of erecting fortifications to prevent the exiled Waldensians from quitting Switzerland in order to regain their native valleys, near Pinerolo. In this report, dated 1691-4, no fewer than seventeen glacier passes are mentioned, or described, around this single valley of Aosta. Two of these deserve special notice. One is the *Col du Géant*, leading from Courmayeur to Chamonix. This pass is indicated, under the

name of 'Col Major,' on several maps, from 1648 onwards, and so was really known at that time. Hence, in 1689, Arnod himself tried to 'reopen' this legendary pass. He took three bold hunters with him, providing the party with crampons for the feet, and iron hooks for their hands, as well as axes, but finally had to give up the descent towards Chamonix, owing to the huge crevasses, probably after having reached what are now known as 'the séracs du Géant.' If we bear in mind that we do not hear of any authentic passage of this col till 1786, when an Englishman, named Hill, achieved the feat, we shall better realise the exceeding boldness of Arnod's attempt.

Another pass which he describes in considerable detail (without, however, distinctly stating that he had himself crossed it) is the *St. Théodule*. He speaks of an ancient and roughly hewn statue (wooden) of St. Théodule, which the Vallaisans had long before set up just on their side of the pass, and—most curiously—attributes to the pass the name of 'Monservin,' an appellation which it bears to this day, and which it gave to the great peak of the Matterhorn (called thus in the Aosta valley) that towers over it. The St. Théodule is, in truth (together with the Hochjoch, in the Oetzthal division of the Tyrolese Alps, though this pass is first distinctly mentioned in 1601), the typical glacier pass of the Alps. Putting aside some possible earlier allusions, we find that it is mentioned by the four great Swiss topographers of the sixteenth century, Aegidius Tschudi (1538 and 1572), Johannes Stumpf (1548), Sebastian Münster (1550), and Josias Simler (1574); the last named translating the name 'the Glacier' given by the other writers (who also call it 'Mons Sylvius') by 'Rosa,' an adaptation of a word ('roësa') in the Aostan patois, signifying 'a glacier,' and now confined to the loftiest point of that great Sea of Ice, namely Monte Rosa itself. Yet, though this real glacier pass was so well known at so early a date, we know for certain of two parties only which had crossed it before H. B. de Saussure revealed it to the world in 1789 and in 1792. About 1528 Tschudi himself went over it, as did, at some date between 1758 and 1767, and possibly on two occasions, one or both the



MONT BLANC FROM THE N.W. BUTRESS OF THE AIGUILLE DU GÉANT

Thomases, of Bex, who collected plants for the celebrated botanist, Albert von Haller.

These details as to certain glacier passes will suffice to show that in all probability it would be easy to increase our knowledge of the subject by further researches and lucky discoveries, and that a far greater number of these passes (of course of no great difficulty, according to modern standards) were really known to the natives than is commonly believed.

Let us now turn our attention from glacier passes to high peaks. Here, too, we find several mentioned by name at a very early date, though, as pointed out above, a mention in the case of a peak in no way implies that it was climbed at or before that date. Monte Viso is the first mountain that attracted the attention of dwellers below, for it is very conspicuous from the plain of Piedmont. It is alluded to, under the name of 'Vesulus,' by Virgil, Pomponius Mela, Pliny the Elder, and Solinus, among the writers of classical antiquity, as well as by Martianus Capella in the fifth century, and by Chaucer in the fourteenth century. The present writer is of opinion that the 'white rock' (*rupes alba*) spoken of in the charter of foundation, about 1091, of the Benedictine priory at Chamonix refers to Mont Blanc, though some think that it indicates a 'Roche Blanche,' near Servoz. But Mont Blanc is certainly meant on maps and in narratives of the seventeenth century from 1606 onwards by the names of 'Montagne Maudite' (a term sometimes apparently applied to the Buet, but probably intended to refer to Mont Blanc), and in 1581 as from 1648 onwards by that of 'Les Glacières.' As yet, the now so familiar name of 'Mont Blanc' (probably the local term) has not been found earlier than 1742 (text of Pierre Martel's Letter) and 1744 (map annexed to the English translation of that Letter). The name 'Mont Malay' (another form of 'Montagne Maudite') occurs first on Du Val's map of 1644, this appellation giving way, from 1773-6 onwards, to that by which the remarkable needle is now known of 'Aiguille du Géant.' In the Bernese Oberland the Eiger is first mentioned in a document of 1252; the Balmhorn in another,

dated 1366; and the Bietschhorn, in 1548, by Stumpf. In 1577-8 Thomas Schöpf in his text and on his map adds many more peaks to the list, among which are the Finsteraarhorn (named 'Schreckshorn'), the Schreckhorn (dubbed 'Mettelberg'), the Jungfrau, the Wetterhorn, the Wildstrubel (termed 'Rätlisberg'), the Wildhorn ('auf der Gelten mons'), the Oldenhorn, the Gross Lohner, the Dent de Jaman, etc., all these now making their first appearance (so far as is known) in a written document or on a map. More to the east the Piz Linard, in the Lower Engadine, is mentioned about 1573 by the local historian Ulrich Campell under the name of 'Pitz Chünard,' from a legend that a certain hunter, named Conrad, had climbed it and planted a golden cross on the summit. In the Eastern Alps, the Gross Glockner appears in 1562, in 1583, and in 1611, under dialectal forms, but the Ortler not, apparently, till Anich's *Atlas Tyrolensis* of 1774, which names also the Presanella ('Presserela Mons'), as well as most of the great Dolomite peaks, such as the Marmolata, the Cimone della Pala, the Cima di Vezzana, the Sass Maor, the Pelmo, the Monte Cristallo, the Tofana, the Sorapiss, the Piz Popena, and the Drei Zinnen, the actual names being given with, in a few cases, only slight orthographical variations. But Anich, though mentioning the Wildspitze in the Oetzthal group and the Dreiherrnspitze in that of the Gross Venediger district, never speaks of the latter summit, of which, like the Adamello, we hear for the first time in 1797. If we turn to the opposite extremity of the Alps we find that the term 'Mont Produissant' (there are several spellings) was applied on many seventeenth and eighteenth century maps to the great mountain mass, which includes the Ecrins, the Ailefroide, and the Pelvoux, though it was sometimes limited to the Ecrins alone. Bourcet's map (1749-1754) calls the Ecrins the 'Montagne d'Oursine,' and gives the name of 'Grand Pelvoux' to the Ailefroide, leaving the real Pelvoux without any name at all. On the other hand, he first mentions the Meije, but under the name of the 'Aiguille du Midi,' for the term Meije is not found till 1834, and then as a nickname. It is a curious fact that the Ecrins was not clearly distinguished from the Pelvoux till 1834,

nor the latter from the Ailefroide till 1858. Yet it is in this district where three of the four highest peaks are so confounded with each other, that we find (as noted above) express mention of no fewer than five glacier passes as early as 1673. These singular variations show how much hangs on accident, for the natives would naturally distinguish the three peaks (if they paid any attention to them), though outsiders visiting or mapping the district might confound them, and it is from the evidence supplied by outsiders that much of our knowledge as to the early names given attributed to peaks and passes is ultimately derived.

The somewhat lengthy list of peaks that we have just given may suffice to show that from the sixteenth century onwards a certain number of lofty summits were becoming individualised, and picked out, by means of special names, from their neighbours, though after a somewhat erratic and inconsequent fashion. But none of them, save the Piz Linard in the case of the legendary Conrad, had as yet found their conqueror.

I.—ASCENTS MADE BEFORE 1760

We must now go on to enumerate a few high peaks, or snowy peaks (this excludes the Mont Ventoux, the Niesen, the Stockhorn, and the like), which were scaled in early days, though our list up to 1760 contains only about half-a-dozen entries, as will be seen on consulting the Chronological List printed below as Appendix II.

In the cathedral church of Susa there is still preserved a remarkable bronze triptych, which depicts the Madonna and Child, between St. George, mounted, and St. James, who is presenting a kneeling warrior. This knight is supposed to be one Bonifacio Rotario (of Asti), as to whom all we know certainly is comprised in the inscription engraved at the foot of the triptych, to the effect that a man of that name 'brought me hither in honour of our Blessed Lord and our Lady on September 1, 1358.' The word 'hither' refers to the peak

of the **Rochemelon** (11,605 ft.), that rises in the Graian Alps on the east of the Mont Cenis Pass. It is still crowned by a chapel, where mass is said annually on August 5 (the festival of Notre Dame des Neiges), on which occasion the triptych is solemnly carried up in procession. A number of more or less fantastic legends are told as to the reasons which induced Rotario to perform this strange act. But we read that in the eleventh century already the monks of the great Benedictine monastery of Novalesa, at the S.W. foot of the peak, had been beaten back on an attempt to scale it in order to secure the treasures left there by one King Romulus, we may safely conclude that Rotario's act was due to a vow of some kind that he had made. In the eleventh century the peak is called 'mons Romuleus,' but the present name first occurs in 1494. As the mountain is snowless on the Susa side it is remarkably accessible for its height, though on the Savoyard slope its flank is covered by a glacier of some extent, which, however, does not deter pilgrims from annually mounting to the chapel from that side also. Some way to the west of the Rochemelon, and on the other side of the so-called Mont Cenis Railway Tunnel, rises another peak, the **Mont Thabor** (10,440 ft.), crowned by a chapel in which mass is said annually towards the end of August. We know that this chapel was rebuilt in 1694, but it is not known at what date this pilgrimage, a rival to that to the Rochemelon, took its origin. The access to this peak is even easier than that to the Rochemelon.

If the Rochemelon was the first high peak in the Alps to be conquered, its Alpine history is scarcely as interesting as that of a much lower summit, the **Mont Aiguille** (6880 ft.) that rises precipitously some thirty-six miles to the S. of Grenoble. It resembles Roraima, in British Guiana, in that it consists of a nearly level grassy plain, supported on very steep rock bastions, that even now can only be scaled (without ropes) by a good cragsman. It was locally known as one of the 'Seven Miracles of the Dauphiny,' and is first mentioned in 1211 by the English chronicler, Gervase of Tilbury. It was supposed to be quite impregnable, and indeed bore the name

of the 'Mons Inascensibilis.' Luckily time has preserved to us the extraordinary letter, written on June 28, 1492, on the summit, by the first conqueror of this wonderful freak of nature, Antoine de Ville, lord of Domjulien and of Beaupré (both places are in Lorraine), as well as other contemporary accounts of this marvellous feat of climbing. He tells us that his master, Charles VIII., king of France, then on his way to Italy, charged him to make an attempt to scale this peak. This attempt succeeded, though the party (which numbered eight or ten men, besides the writer) had to use ladders and other 'sobtilz engins'—it would be interesting to know what these were. He spent three days on the summit, which he caused to be baptized in the Threefold Name, and had mass said in the hut that he built on the top. The summit consists of a fine grassy meadow, whereon were many chamois, old and young, another account adding that a number of birds, such as crows and sparrows, were also discovered there. Three great crosses were set up on the edge of the meadow, to prove to the spectators below that the summit had really been attained. This expedition, considering its date (a little before Columbus discovered America—or, strictly speaking, the Bahama Islands—on October 12, 1492), is one of the most extraordinary incidents in the annals of mountaineering. This singularity induced the present writer to have all the five original documents photographed for reproduction (four are given only with the *édition de luxe*) of his work *Josias Simler* (Grenoble, 1904), the text being also transcribed for the benefit of the many who cannot easily decipher fifteenth-century writing.

After this amazing expedition of 1492, which has a distinct flavour of the Middle Ages, we must wait long till we come to any authentic account of the conquest of another peak, and even then we cannot expect to meet with similar sensations and thrills. The Swiss traveller, J. J. Scheuchzer (of whom more anon), tells us that in 1707 his friend, Rudolf von Rosenroll (a member of an ancient Thusis family), made the ascent of the **Piz Beverin** (9843 ft.), a prominent summit in the range W. of Thusis and the Via Mala. The last hour of the ascent alone offered

any serious difficulties, owing to the strong wind that blew, the absence of bushes wherewith to pull oneself up, as well as the soft and yielding nature of the soil of which the mountain is composed. The climber, who appears to have been alone, carried to the top a barometer, with which he made observations, and had the good fortune to enjoy an unclouded and very extensive view. 'There is nothing to show that it was a 'first ascent,' but it is certainly a 'first recorded ascent.' On the other hand, the ascent at some uncertain date between 1716 and 1742 of the *Scesaplana* (9741 ft.), at the extreme western extremity of the Rhätikon chain, and N.E. of Ragatz, does not pretend to any originality. But the narrative is the earliest that has been preserved to us of a visit to this glorious viewpoint, which rejoices in a real, though harmless, glacier. The excursionist was Nicholas Sererhard (1689-1756), who in 1742 wrote his 'Description of the Grisons.' He was a native of Küblis, and from 1716 to 1756 pastor of Seewis, two villages in the Prättigau or Landquart valley, that extends just to the south of the peak, and was accompanied by two other men. He speaks with respect of the 'horrible great glacier' that the party had to traverse, and marvelled much at the nut-shells, hairs of men and horses, and shavings that lay scattered over its surface, having been blown up by the wind. He gives a very detailed description of the panorama which lay unrolled before his eyes, the Tödi attracting his attention particularly. The descent was affected by way of the Lünersee.

Last on our list before 1760 comes the *Titlis* (10,627 ft.), the well-known mountain that overhangs the Engelberg valley. The first ascent was effected in July, 1744, by four peasants of Engelberg. Two of these were still alive in 1767, when the Subprior obtained from them exact information as to their climb twenty-three years before. They seem to have taken the now usual route by way of the Trübsee and the glacier above it. They employed crampons on their feet, had sticks wherewith to sound for concealed crevasses, and were all four bound together by a rope. They planted a great pole in a

hole they dug out of the ice on the summit, and tied to it two large bits of black cloth, which were well seen from the village and monastery for a long time, and served as proofs of the success of their adventurous undertaking.

It does not enter into the scope of this chapter to trace out the gradual growth of the love of mountain beauty. We limit ourselves here to narrating how, for whatever reasons, the high peaks and glacier passes of the Alps were gradually overcome in the course of long years. But in any sketch of this subject it would not be right to omit the name of J. J. Scheuchzer (1672-1733), of Zürich, a learned man of science, and a Fellow of the Royal Society. He was the official town physician at Zürich, and also professor at the Caroline School in that town. Between 1702 and 1710 (except in the year 1708) he made a series of journeys among the mountains of his native land. The first three years of these were described in a volume published in London in 1708 with the 'imprimatur' of Sir Isaac Newton, then President of the Royal Society. This narrative, added to other descriptions of his later journeys, was issued in 4 vols. at Leyden in 1723. In 1716 Scheuchzer had published his *Helvetiae Stoicheiographia, Orographia, et Oreo-graphia*, in which he sums up all that was then known as to the peaks and passes of Switzerland, thus bringing up to date Josias Simler's *De Alpibus Commentarius* (1574). Now Scheuchzer has no claim to be a mountain climber. His one glacier pass is the Segnes (a very mild pass of that kind), while he crossed the Gemmi twice, before the path was improved in 1740-1, and also the Joch Pass. His one peak was an outlier of the Pilatus range. But his narratives greatly stimulated the rising taste for travelling among the mountains, and in this way Scheuchzer must be regarded as one of the earliest pioneers of mountain climbing. He noted all mountain phenomena that he remarked during his travels, giving a summary of what then was known about glaciers (which he terms 'montes glaciales') when describing the Rhone glacier. He wrote in Latin, in order (like Simler) to make known his native land to the outer world, especially to foreign scientific men, for even at that date

Latin was still the language of learned men. We should not forget, too, his map of Switzerland (four sheets, 1712), which remained the best till the publication of Weiss's Atlas (1786-1802).

II.—ASCENTS MADE BETWEEN 1760 AND c. 1800

The true date of the origin of serious mountain climbing is 1760, just about one hundred years before the foundation (winter of 1857-8) of the English Alpine Club, the first institution of its kind. In that year G. S. Gruner published his *Die Eisgebirge des Schweizerlandes* (3 vols.) (a detailed description of Swiss and other glaciers as far as they were then known, and so a completion of Scheuchzer's 1716 book, as regards this particular point); and H. B. de Saussure (1740-1799)—a wealthy scientific man of Geneva—on occasion of his first visit to Chamonix, offered a prize to the man who should first succeed in discovering a practicable route up *Mont Blanc*: the highest summit of the Alps was at once selected as the object of attacks by the infant school of mountaineers. This offer did not meet with an enthusiastic reception, for the first serious effort to scale Mont Blanc dates only from 1775, and the next from 1783. But before that time the mere idea of climbing mountains had stirred up several men to try other peaks. In the Eastern Alps the **Ankogel** (10,673 ft.), one of the most easterly of snowy Alpine peaks, was reached about 1762, and the **Terglou** (9400 ft.), the culminating point of the South-Eastern Alps, in 1778. As early as 1770 the brothers Deluc, also scientific men of Geneva, had gained the summit of the **Buet** (10,201 ft.), in order to make scientific observations. In 1775 Marc Théodore Bourrit (1739-1819), another Genevese, discovered a 'new route' (the first on record) up that peak, which Saussure visited in 1776, while in 1800 it was the scene of the first known accident to a traveller on a glacier, a young Dane, F. A. Eschen, having then perished in a crevasse. In 1779 L. J. Murith (1742-1816), one of the canons of the Great St. Bernard, succeeded in scaling the **Mont Vélan** (12,353 ft.), that

risers to the N.E. of the convent. In 1767 and 1778 he guided his friend, Saussure, to the Valsorey glacier, and Bourrit in 1778 to the Otemma glacier, besides exploring in 1785 (apparently not for the first time) the granite range on the left bank of the Orny glacier in the interests of Saussure. In 1784 the curé of Val d' Illiez, M. J. M. Clément, vanquished the highest point of the great local peak, the **Dent du Midi** (10,696 ft.).

Matters were now ready for the final assault on **Mont Blanc** (15,782 ft.). In 1784 two of Bourrit's guides, François Cuidet and J. M. Couttet, starting from St. Gervais, succeeded in attaining the Aiguille (12,609 ft.) and the Dôme du Goûter (14,118 ft.), and even a point near the first of the Bosses du Dromadaire. On July 1, 1786, several guides reached a spot just below the first Bosse, mounting from Chamonix. Finally, on August 8, 1786, the coveted goal was attained at 6.30 P.M. by a bold young Chamonix guide, Jacques Balmat (1762-1834), accompanied by Michel Paccard, the village doctor. Since the conquest of the Mont Aiguille, nearly three hundred years previously, no more plucky feat of climbing had been performed, for in 1786 the glaciers were still regarded with awe, and it required enormous courage to venture one's life in these trackless deserts of ice, seamed everywhere with yawning chasms, ready to engulf the unwary visitor. In 1787 Saussure in his turn attained the summit, his being the third ascent, while six days later Colonel Beaufoy, an Englishman, repeated the feat. On the other hand, Bourrit was never able to make this ascent, but in 1787 he followed the steps of Mr. Hill (1786) over the Col du Géant, Saussure crossing this pass in 1788 only, but then remaining on its crest for seventeen days, employed in making scientific observations. In 1822 it was traversed by Mrs. and Miss Campbell, the first women to attain these snowy heights, though they did not carry out their intention of ascending Mont Blanc: that summit had been gained in 1808 by a Chamonix woman, Marie Paradis, while in 1838 Mlle. Henriette d'Angeville repeated the exploit.

Saussure's activity was not confined to the Mont Blanc region. In 1789 he ascended the Pizzo Bianco, near Mac-

ugnaga, and the Rothhorn, near Gressoney, and crossed the St. Théodule to Zermatt, which he was the first genuine traveller to visit. In 1792 he mounted from the Italian side to the St. Théodule, where he remained for several days, making observations, climbing in the intervals the Little Matterhorn and the Theodulhorn: the loftier Breithorn was not ascended till Monsieur H. Maynard, in 1813, reached its summit, under the impression that he had conquered Monte Rosa. Saussure's climbing performances thus range over a very few years (1776-1792), but they caused a great sensation, for he enjoyed wide scientific fame, and as far back as 1768 had been elected a Fellow of the Royal Society. Between 1779 and 1796 he published his great work, the *Voyages dans les Alpes*, in four quarto volumes, illustrated by many maps (those of the Mont Blanc group given in vols. i. and ii., 1779 and 1786, are the first detailed map of a snowy group). This work may still be turned over with profit and interest, though, of course, its natural science is now of purely historical importance. Bourrit's numerous books, on the other hand, though filled with an almost boyish and infectious enthusiasm, are less important for the history of climbing, though still worth consulting by any one desirous of studying the early visits of travellers to various Alpine haunts.

The scene next shifts far away towards the east to the upper valleys of the Rhine in the Grisons. We have now to study the doings of a simple Benedictine monk, Father *Placidus à Spescha* (1752-1833), who in his humble way tried to follow in the steps of his master, Saussure, though without either his master's scientific knowledge or his material resources. Born at Truns, between Ilanz and Disentis, in the valley of the Vorder Rhine, he became in 1774 a monk at Disentis, an ancient house (said to have been founded in 614 by a disciple of St. Columban). After completing his education at Einsiedeln, he returned in 1782 to Disentis. The rest of his life was spent in serving various cures in his native valleys, though he suffered much at the hands of his brother monks, who could not understand his scientific tastes. In 1799 he

was accused of being a spy (his climbs and maps were held suspicious) in favour of the French, and, when the French did come, he had to give up to them all his scientific collections. In addition he had the dreadful experience of learning, soon after his departure, that his monastery, with all its most precious archives, including his own original MSS., had been burnt by order of the French general so as to punish the peasants who dared to resist his advance. Despite all these disadvantages, Spescha achieved an extraordinary amount of success in his mountain explorations around his native valley: a fact the present writer, who has written special Climbers' Guides to the region, realises most keenly. It is true that Spescha failed to attain the very highest summit, the Tödi, although in 1788 he ascended the Stockgron (11,214 ft.), close to it, and only 673 ft. lower, while in 1824, sitting on the depression (close to the Stockgron and 863 ft. lower than the Tödi), now called the Porta da Spescha, he had the melancholy satisfaction of seeing the two local chamois hunters that he had sent forward actually attain the loftiest point. Perhaps he comforted himself with the old law maxim, *qui facit per alium facit per se*, for the hunters, left to themselves, would scarcely have dreamt of facing the terrible glaciers, that most probably had also deterred Spescha from pushing on towards the goal. Here are the names of some of his principal climbs—in 1789, the **Rheinwaldhorn** (11,149 ft.), the highest summit around the sources of the Hinter Rhine, and, in 1806, the **Güferhorn** (11,132 ft.), the second summit of that region; in 1792, the **Oberalpstock** (10,926 ft.), the highest point anywhere near Disentis; in 1793, the Piz Urlaun (11,060 ft.), near the Tödi; in 1801, Piz Aul (10,250 ft.) and Piz Scharboden (10,250 ft.); and in 1802, Piz Terri (10,338 ft.), these three mountains being the culminating points in the ranges that rise to the north of the Rheinwaldhorn group. Oddly enough, he does not seem to have visited any of the higher peaks of the Medel group, but only its outliers, here again the dread of glaciers probably holding him back. It is noteworthy that in the course of all his climbs he rarely set foot on a glacier, though in 1812, on occasion of his

second ascent of the Oberalpstock, he did cross the easy glacier Brunni Pass (8977 ft.). In early Alpine history the name of Spescha must always be bracketed with that of Saussure.

The scene now shifts once more towards the east to the borders of the Tyrol and Carinthia, to the bell-like peak of the **Gross Glockner** (12,461 ft.). This summit rises at the head of the Möll valley (Carinthia), wherein stand Döllach, and, higher up, the Alpine village of Heiligenblut. Its height as compared with those of the Ortler (really 12,802 ft.) and Gross Wiesbachhorn (really 11,713 ft.) was a subject of frequent discussion, as also its exact topographical position. In 1779 already the question of the possibility of reaching the top was mooted seriously. But it was not till later that the news of Saussure's success on Mont Blanc brought about the first attempt to vanquish a lofty snowy Austrian peak. The deciding stimulus came from Count Franz von Salm (1749-1822), who in 1783 became Prince-bishop of Gurk (he was created a cardinal in 1817), in which diocese the peak rises, so that he had often seen it in the course of his pastoral visitations. A first attempt in June, 1799, by two peasants of Heiligenblut (the brothers Klotz), showed that the climb was not impossible, as they reached a very considerable height, indeed nearly gaining the summit of the Klein Glockner. The bishop therefore ordered the construction of a wooden shelter-hut in the Leiter glen, on the S.E. side of the mountain, and on August 19, 1799, a number of peasants (it does not seem that the bishop himself was of the party) established themselves in it. But bad weather drove the party back to Heiligenblut. It cleared on the 24th, so that a small party started for the hut, and next day, in the finest weather, but after struggling with much fresh snow, reached the summit of the Klein Glockner, where they planted a cross. Besides the brothers Klotz, there were two other carpenters, the bishop's Vicar-general von Hohenwarth, and a sixth man, whose anonymous diary has preserved to us these details. This success excited immense rejoicing, and the bishop caused a medal to be struck

to commemorate the great event. Yet he does not seem to have been completely satisfied, for in 1800 he organised another expedition, in which he himself took part. But he did not get very high up, while of his party of sixty-two persons eight attained the Klein Glockner, five of these only (the brothers Klotz, two other carpenters and Herr Horasch, the curé of Döllach) venturing to cross over to the Gross Glockner, some 112 ft. higher. Thus the loftiest point was won on July 28, 1800, a memorable date in the Alpine history of the Eastern Alps. The next day the ascent was repeated by the four peasants, in order to plant a huge iron cross on the culminating point, the party being reinforced by Valentin Stanig (1774-1847), who had been delayed at Heiligenblut the day before through making scientific observations. In his youthful impetuosity Stanig clambered up the tall tree which the peasants had planted next to the cross, in order, as he himself says, to 'be higher than the Glockner or any one else who has climbed it.' Stanig became later an ecclesiastic, and made a number of climbs, in the interests of botany, such as the first ascent of the Watzmann (in 1799 or 1801) and the ascent of the Terglou (1808). His notes of his climbs display the greatest enthusiasm, and Stanig is deservedly reckoned as the earliest amateur mountaineer in the Eastern Alps.

At the end of this sketch of the Alpine history of the period extending from 1760 to c. 1800 let us recall the publication of several maps which were more or less based on personal observations among the mountains, and aided the succeeding generations very much. For the Dauphiné Alps we have that of Bourcet (1749-1754); for Savoy and Piedmont, that of Borgonio-Stagnoni (a revision, made in 1772, of a map dating from 1680); for the Tyrol, Peter Anich's *Atlas Tyrolensis* (1774); and for the Swiss Alps, Weiss's Atlas (1786-1802)—the dates given referring in each case to the publication of the map in question.

III.—ASCENTS MADE BETWEEN c. 1800 AND c. 1840

As in the period we have just studied so in this we have to deal with three sets of explorations in three distinct Alpine regions, but, while the Eastern Alps is included in both, the Mont Blanc chain is now replaced by that of Monte Rosa, and the Bündner Oberland (the home of Spescha) by the Bernese Oberland.

Among the snows of the Bernese Oberland not much had been done before the early years of the nineteenth century. About 1780 the Gamchilücke, in 1783 the Petersgrat (possibly crossed in 1712 already), and in 1790 the Tschingel Pass—all close to each other—had been crossed, while in 1795 the Gauli Pass and in 1797 the Oberaarjoch were traversed. But the only peaks ascended for certain were two summits that rise above the Gauli glacier—in 1788 the Hangendgletscherhorn (10,808 ft.) by J. E. Müller (who between 1792 and 1797 also visited the Uri Rothstock, 9620 ft.), one of Weiss's surveyors, and a peak more to the east, but not now to be identified with certainty, the 'Blaues Gletscherhorn,' which about 1792 was visited by Weiss when making his survey. Now the expenses of this survey, and of the publication of his Atlas, a marvel for its date, so far as regards the High Alps, had been defrayed by the head (J. R., 1739-1813) of the rich merchant family of Meyer, of Aarau, who himself had, in 1787, climbed the Titlis, while his son it was who had crossed the Tschingel in 1790. It was therefore most fitting that various members of this family should be the first to ascend some of the higher peaks of the group. We know nothing of the previous practical knowledge possessed by any of the Meyers as to the region they visited, but the results attained are simply marvellous. In 1811 the two sons of the head of the family, named J. R. (1768-1825) and Hieronymus, with several servants from Aarau and a porter picked up at Guttannen, having reached the Vallais by way of the Grimsel, crossed the *Beich Pass*, a glacier pass, to the head of the Lötschen valley. Here they added two local

chamois hunters to their party and traversed the *Lötschenlücke* to the S.E. foot of the **Jungfrau**, which they climbed on August 3, 1811, the Guttannen porter having been sent back alone over the *Lötschenlücke*. The party seems to have attained the *Roththalsattel* by a route not now adopted, but there can be no reasonable doubt that the highest summit of the peak was gained, this being the first ascent. They then recrossed the two passes named (both new) to their point of departure in the Vallais, and went home again over the Grimsel. The journey was a most extraordinary one for the time, and we cannot be surprised that some envious persons threw doubts on its complete success. To settle these another expedition was undertaken in 1812. In this the two sons, Rudolf (1791-1833) and Gottlieb (1793-1829), of J. R. Meyer, jr., played the chief parts. After an unsuccessful attempt, defeated by bad weather, in the course of which the *Oberaarjoch* was crossed twice (this route being much more direct than the long détour through the *Lötschenthal*), Rudolf, with the two Vallais hunters (Alois Volker and Joseph Bortis), the Guttannen porter (really named Arnold Abbühl), and a Hasle man, bivouacked on the depression, now known as the *Gemslücke*, on the S.E. ridge of the *Finsteraarhorn*. Next day (August 16) the whole party attempted the ascent from the Studer névé on the E. by way of the S.E. arête, but Meyer, exhausted, remained behind with the Hasle man, the three other guides alone having the honour of making the first ascent of the **Finsteraarhorn**, the monarch of the Bernese Oberland. The following day the party crossed the *Grünhornlücke* (yet another new pass) to the Great Aletsch glacier, but bad weather then put an end to further projects. At a bivouac, probably just opposite the present Concordia Inn, the rest of the party, having come over the *Oberaarjoch* and the *Grünhornlücke*, joined the *Finsteraarhorn* party. Gottlieb, Rudolf's younger brother, had more patience than the rest and remained longer at the huts near the Märjelen lake, where the adventurers had taken refuge. His reward was the honour of making the second ascent (September 3) of the *Jungfrau*, the *Roththal-*

sattel being reached from the east as is now usual, and his companions being the two Vallais hunters. His brother, Rudolf, profiting by the return of the fine weather, succeeded on the same day in making the first authentic and certain passage of the *Strahlegg Pass* from the Unteraar glacier (above the Grimsel) to Grindelwald, being accompanied by Abbühl and the Hasle man (Kaspar Huber). Meyer tells us that the shepherds on the Zäsenberg pastures, above the Lower Grindelwald glacier, were extremely surprised at the arrival of the adventurers. The next day Rudolf's uncle, Hieronymus, and his party followed the tracks of their friends to the summit of the pass, but did not venture to descend towards Grindelwald owing to thick mists.

Such is the barest outline of two most astonishing journeys amid the highest snows of the Bernese Oberland. The present writer, who has carefully studied the original narratives, and is well acquainted with the ground covered, has no doubts whatever as to the complete success that attended these two journeys, on which certain suspicions have been cast. The Meyers appear on the scene no more, but what they did in 1811-12 is amply sufficient to secure them a front rank among the early explorers of the Alps.

The same two peaks, however, attracted other ambitious men. A Soleure geologist, F. J. Hugi (1796-1855), having been led by his scientific wanderings into the Roththal, above Lauterbrunnen, in the early days of August, 1828, conceived the idea of climbing the Jungfrau from that side, and actually made an attempt. A fortnight later this route was again tried (August 21) by two Englishmen, Mr. Yeats Brown and Mr. Frederick Slade, with nine local guides. Their plucky attack failed for various reasons, but the Englishmen declare, in their account, that they consider the ascent to be feasible, though very difficult. Hugi himself, on August 19, 1828, tried the Finsteraarhorn from the W. by the route now generally taken, but bad weather prevented the party from pushing beyond the Hugiattel, on the N.W. ridge, and about 600 ft. below the summit. In the same month of August, 1828, yet a third party endeavoured to explore the high

snowy regions of the Bernese Oberland. Caspar Rohrdorf, (1773-1843), an official at Berne, with a number of men from Grindelwald, really did cross the depressions now known as the *Unter* and the *Ober Mönchjoch*, and so gained the E. foot of the Jungfrau. But while he sent most of his men forward to explore the way, he contented himself with excursioning to the Jungfrauoch (not visited before) and climbing the great snowy hump on it, called by him *Sattelknopf* (pommel of a saddle), that is so conspicuous from the Wengern Alp. A few days later, a fresh attempt (September 10) by some of his Grindelwald men was completely successful, six Grindelwald peasants, all bearing well-known local names, attaining the summit. They later received a double ducat apiece from the Government of Berne in recognition of their exploit, which opened yet a third route to the eastern foot of the Jungfrau.

In 1829 Hugi again besieged the Finsteraarhorn. After one failure, his party succeeded (August 10) in once more reaching the Hugiattel. But some way above it, Hugi did not dare to cross a steep ice slope, so that two of his guides, Jakob Leuthold and Johannes Währen, both of Hasle, alone attained the summit, where they built a cairn, fixing in it a pole, to which they attached a flag. Let us add that it was not till 1842 that the first traveller, Herr J. Sulger, of Basel, attained the top of the Finsteraarhorn, where he found some iron rods, a rusty nail, and some threads, all signs of an earlier visit. Both of the previous parties had left flags on top, so that these relics might have belonged to one or to the other.

Let us now turn to Monte Rosa. To the south of this great mountain mass extend the twin valleys of the Lys (Gressoney) and of the Sesia (Alagna), the head of each being inhabited by a German-speaking colony, that has come hither from the Vallais and settled down centuries ago. From the head of either valley it is comparatively easy to reach the wide opening of the Lysjoch (14,033 ft.) between the Lyskamm and the main Monte Rosa mass. Perhaps it was a faint, dim recollection of their descent, perhaps merely a laudable curiosity to verify an old legend as to what lay behind this mighty wall of snow and

ice, that led to the first known exploration of the group. There was also a certain rivalry between the men of the two valleys. In 1778 the Gressoney men, hearing that the Alagna men proposed to explore these regions, determined to get ahead of them. So it was that on August 15, 1778, seven young fellows from the German-speaking colony of Gressoney (among them a Vincent and a Zumstein, names to be heard of again later) made a valiant attempt to solve this mystery. They succeeded in gaining a rocky tooth (*c.* 14,325 ft. in height), situated just to the W. of the great opening of the Lysjoch, and named by them the 'Rock of Discovery.' Hence they looked down into the 'Lost Valley,' of which legends told, and which was simply the immense hollow of ice and snow enclosed between Monte Rosa and the Lyskamm. It is said some of them repeated this expedition in 1779 and in 1780, finally convincing themselves that beyond the snows there were pastures, occupied by cows and men; they were simply the 'alps' of the Riffel above Zermatt. Nothing more came of this exploration for the time. In 1801 Dr. Pietro Giordani, of Alagna, vindicated the honour of his valley by climbing the lofty spur (13,304 ft.) of Monte Rosa that now bears his name. After a fruitless attack in 1816 by Dr. F. Parrot with Joseph Zumstein, J. N. Vincent, 1785-1865 (son of one of the heroes of 1778), attained the summit called after him the **Vincent Pyramide** (13,829 ft.), being followed five days later by Herr Bernfaller, canon of the Great St. Bernard and *curé* of Gressoney, while two days later Vincent himself repeated the climb, accompanied by a compatriot, Joseph Zumstein (1783-1861). The way was now open. In 1820 a large party, including J. N. Vincent, his younger brother, Joseph, and Zumstein, mounted (July 31) to the 'Rock of Discovery,' descended to the north, bivouacked in a tent pitched in a crevasse in the midst of the great snowy hollow already spoken of, and next morning reached the peak later known as the **Zumsteinspitze** (15,004 ft.), but 200 ft. odd below the culminating summit of Monte Rosa. Here they erected an iron cross, which, as well as the initials of Zumstein and the two Vincents, carved in the highest rock, was found in 1886 by the present

writer's party. This was the loftiest peak of Monte Rosa attained before 1848. Zumstein repeated the ascent of his peak in 1821 and in 1822, while in the latter year an Austrian, Ludwig, Baron von Welden, mounted the lower summit, named by him (like the other peaks mentioned above) and known as the **Ludwigshöhe** (14,259 ft.). These successes of the Gressoney men naturally caused some jealousy in the Alagna valley. So a young Alagna man, Giovanni Gnifetti (1801-1867), who in 1823 became assistant curate at Alagna, of which he was the parish priest from 1834 to his death, undertook to vindicate the honour of his native valley. After unsuccessful attempts in 1834, 1836, and 1839, his perseverance was rewarded on August 9, 1842, when he gained the top of the **Signalkuppe** (14,965 ft.), a peak but little inferior in height to the Zumstein-spitze, and now also known by the name Punta Gnifetti. The final conquest (1848-1855) of the highest points of Monte Rosa is most conveniently described in the following section.

If, however, the early attempts to conquer the second highest summit in the Alps were not crowned with success, it was otherwise with the loftiest peak in the Eastern Alps and in the Tyrol, the **Ortler** (12,802 ft.), that fell at almost the first serious attempt made to scale it. From 1800 onwards the Archduke John of Habsburg (1782-1859)—son of the Emperor Leopold II., and brother of Francis II., the last of the Holy Roman Emperors—made frequent journeys in the Eastern Alps, and continued his wanderings till the year before his death, when he visited the Rigi. His most important ascent was that of the Ankogel (1826), though he took part in the attempt on the Gross Venediger in 1828. On his very first journey (1800) the archduke, struck by the glorious view of the Ortler that is gained as the traveller descends from the Reschen Scheideck to the head of the Vintschgau or upper Adige valley, had commissioned a member of his suite (this command recalls Charles VIII. and Antoine de Ville in 1492), named Gebhard, to explore, and, if possible, climb this splendid peak, which Anich's Atlas of 1774 had declared to be the culminating point of the Tyrol. Gebhard undertook the fulfilment of this

order in the summer of 1804, when he mounted to Sulden and organised several attempts from that side, sending out his own two Zillerthal guides as well as a number of men. But six or seven attacks all ended in failure. Gebhard was plunged in black despair, and sat miserably in his inn at Mals, his eyes ever fixed on the invincible peak, that displayed all its beauties to him in a more attractive form than ever. The landlord suddenly announced that a chamois hunter of St. Leonhard, in the Passeierthal, desired an interview with him. This man, Joseph Pichler by name (commonly known as Josele), had been previously indicated to Gebhard as the most likely person to succeed in the conquest of the Ortler. Josele agreed to make an attempt, and asked for a reward only in case of success. With Gebhard's two Zillerthal men (Johann Leitner and Johann Klausner) he left Trafoi at 1.30 A.M. the very next morning (September 27, 1804), and at 10 A.M. Gebhard himself saw the three bold mountaineers attain the coveted summit. In order to avoid the glaciers as much as possible, the three climbed up the rocks of the Hintere Wandln to the S.W. of the peak, a route that even now is reckoned as distinctly difficult and dangerous, while the party had only crampons and poles, but neither ice-axe nor rope. They carried a barometer with them, the reading of which showed that the Ortler was really higher than its rival, the Gross Glockner. Hence the immense joy with which their triumph was received was most genuine and unalloyed, especially as they regained Trafoi safe and sound at 8 P.M. the same evening. Next year (1805) Josele discovered a better, though not an easy route, from Sulden by the Hinter Grat or S.E. ridge of the mountain. On August 30 (and again on September 16) Gebhard himself achieved the ascent, this being the sixth in all, but the first made by a traveller. It shows what almost incredible pluck and courage the early explorers had that on the night of September 13, thanks to Josele and his men, a great bonfire was kindled on the summit and blazed there for two hours, to the huge amazement of half Tyrol—further, the brave men descended from the peak that night by the light of torches. The giant was overcome, that

was enough. Doubtless this accounts for the fact that during the next half-century but two ascents were made (in 1826 and in 1834), Josele being the guide in either case, and selecting on both occasions his original route of 1804. It was not attained (despite several attempts) again till 1864, when it was climbed by three Englishmen (Messrs. E. N. and H. E. Buxton, and Mr. F. F. Tuckett), with Christian Michel, of Grindelwald, and Fr. Biner, of Zermatt. Though the 1864 route has been superseded by easier lines of ascent, it was that ascent which revealed the Ortler to mountaineers in general, so that the 1864 party, all strangers to the region, deserve almost as much credit as Josele and his two companions sixty years earlier.

The ascent of 1834 had been made by one Peter Carl Thurwieser (1789-1865), a Tyrolese ecclesiastic, who from 1820 onwards held the post of Professor of Oriental Languages at the Lyceum at Salzburg. Blessed with small means, he had the true spirit of a mountain wanderer, and is credited with having been (despite his barometer and his botanical box) the first man in the Eastern Alps who climbed peaks for the sake of climbing, without any ulterior object—in short, the first real ‘mountaineer’ (using that term in its restricted sense) in the Tyrol. He is said to have climbed over seventy peaks, great and small, in his day, his active career extending from 1820 to 1847. Of these the more important (besides the Watzmann in 1820, the Ankogel in 1822, the Gross Glockner in 1824, and the Ortler in 1834) were the first ascents in 1833 of the Strahlkogel (in the Stubai region), in 1836 of the Fernerkogel (in the Stubai region), in 1846 of the Gross Mörchner, and in 1847 of the Schrammacher (both these peaks belonging to the Zillerthal group). He also made the first ascents by a traveller in 1825 of the Gross Wiesbachhorn (Glockner group), in 1834 of the Dachstein, and in 1836 of the Habicht (Stubai Alps). He accompanied on several climbs Prince Frederick von Schwarzenberg (1809-1885), who was from 1835 to 1850 Prince-archbishop of Salzburg (later of Prague, and cardinal in 1842). Among the chief ascents made by the archbishop (without Thurwieser) were the Gross Wiesbachhorn (1841) and at uncertain dates the Kitzteinhorn

and the Hochtenn, all three in the Glockner group. It is said that once when the archbishop was on a confirmation round in the Pinzgau he recognised among the crowd awaiting his arrival a chamois hunter who had formerly served him as guide, and whose hand he shook heartily, before attending to all the more important ecclesiastics and laymen who stood around.

We come back to the Archduke John (with whom also Thurwieser was acquainted) and his attempt on the **Gross Venediger** (12,008 ft.) in 1828. An imperial forester, Paul Rohregger, had conceived the idea of climbing this virgin peak by the steep snow slopes on its N.W. slope, and had convinced himself of the practicability of this route. Hence on August 9, 1828, a party of 17 (including the archduke, and A. von Ruthner), led by Rohregger, set out for the ascent. The weather was superb, but the sun very hot, while fresh snow delayed the advance of such a large party. Rohregger led the way over the bergschrund, and was followed by three other guides, who improved the steps he cut in the ice, while the remainder were roped together and followed more slowly. At a certain point, the state of the snow seemed so dangerous at the late hour of the day (2 P.M.) that Rohregger advised retreat. While this proposal was being debated an avalanche broke loose above and swept away Rohregger into the yawning bergschrund at the foot of the slope. This incident put an end at once to all idea of further advance, though luckily Rohregger was rescued without having suffered much damage. Such an experience gave an evil reputation to the peak. But finally on September 3, 1841, it was conquered (this time by its S.E. slope) by a large party. No fewer than twenty-six persons attained the summit, among them being old Rohregger and A. von Ruthner, who was destined to play such a prominent part in the further exploration of the Eastern Alps, and who survived long enough to celebrate the jubilee of his exploit. Thus by 1841 three of the best known Tyrolese peaks (the Ortler, the Gross Glockner, and the Gross Venediger) had been subdued, but it was not till the 'sixties' that the Eastern Alps finally yielded up most of their secrets to the indefatigable curiosity of a few bold explorers.

IV.—ASCENTS MADE BETWEEN c. 1840 AND 1865

This period may be described as that of the almost complete conquest of the High Alps, though certain remoter districts did not attract much attention till later. An examination of the Chronological List printed below as Appendix II. amply proves this general statement, and gives the reader a bird's-eye view of the gradual spread and increase of climbs among the High Alps. There is thus a superabundance of matter to consider, but our limits do not allow us to do more than indicate a few of the main features of this great extension of mountaineering zeal. It seems best, therefore, to give first a short account of the principal continental climbers during this period, and then to dwell more in detail on the exploits of English mountaineers, who appeared later on the scene than their foreign rivals, but completed their work.

The most prominent figure in the Alpine history of our period is, of course, *Gottlieb Studer* (1804-1890), of Berne. Born only five years after the death of Saussure, he made his first ascent at the early age of four years in 1808 (before the Jungfrau had been vanquished), that of a hill named Rafrüti (3950 ft.), near Langnau in the Emmenthal, and repeated this expedition in 1883, seventy-five years later. His own list of mountain climbs extends from 1823 to 1883, and includes six hundred and forty-three distinct entries, while between 1823 and 1881 he drew no fewer than seven hundred and ten mountain panoramas and views. His first high expedition seems to have been an attack on the Diablerets in 1825 (he made the first ascent of this peak in 1850), and his last the Pic d'Arzinol in 1883. His best work was done between 1839 and 1876, and lay mainly in the Bernese Oberland and the Pennines, though he visited all other parts of the Swiss Alps, not to speak of the Dauphiné (1851 and 1873), the Graians (1855, 1856, and 1858), and the Tyrol (1846 and 1880). Everywhere he went he made new ascents or passes, or opened routes known previously only to the natives. He published comparatively little, though his

detailed MS. accounts are still carefully preserved. But his two maps of the Southern Valleys of the Vallais (1849 and 1853), and his elaborate history of climbing in the Swiss Alps, issued in 4 vols., 1869-1883 (new edition in 3 vols., 1896-9), under the title of *Ueber Eis und Schnee*, have proved of the highest value to his successors. He must be distinguished from his cousin Bernard (1794-1887), also of Berne, who also travelled much in the Alps for the sake of his geological studies, whereas Gottlieb devoted his attention rather to topography and actual climbing. Of the early Zürich school of climbers, *Melchior Ulrich* (1802-1893) is the principal. His first Alpine journey dates from 1814, and he ascended the Titlis as early as 1833, while his last high climb was made in 1871. He travelled a good deal with Gottlieb Studer. Historically his great achievement was the exploration, from 1847 to 1852, of the glacier passes around Zermatt, at that time barely known by name. Later he devoted himself mainly to Eastern Switzerland. Another Zürich climber of those days was *Heinrich Zeller-Horner* (1810-1897), whose activity was mainly confined to Central and Eastern Switzerland. *Georg Hoffmann* (1808-1858), of Basel, specialised on the peaks around the Maderanertal, publishing thereon an interesting work in 1843, though his great Panorama of that range, drawn in 1852, was not published till 1865. *Édouard Desor* (1811-1882), of Neuchâtel, is best known as one of the early scientific men who studied on the spot glacial phenomena and especially the vexed question of the motion of glaciers. It was probably because he chose as the scene of his labours, from 1840 to 1845, the Unteraar glacier, above the Grimsel, that as a mountaineer his name is associated almost exclusively with the high peaks of the Bernese Oberland. So in 1841 he made the first ascent of the Ewigschneehorn and the fourth of the Jungfrau (not visited since 1828), in 1842 the first ascent of the Gross Lauteraarhorn, in 1844 the first ascent of the Rosenhorn peak of the Wetterhörner (his two Meiringen guides being sent a few days later to conquer the Hasle Jungfrau summit of that group), finally in 1845 the second ascent (the first by a traveller) of the Hasle

Jungfrau, and the second ascent of the Galenstock. His two works (1844-5), together with those of Gottlieb Studer, G. Hoffmann, and J. D. Forbes (all issued in 1843), formed, till 1856-7, the principal books devoted for the most part to descriptions of climbs among the High Alps. A line of mention must also be accorded to *J. Coaz* (still living), who, from 1846 to 1850, climbed many peaks in the Engadine, including its highest summit, the Piz Bernina (1850).

Of a younger generation are the three following mountaineers. J. J. Weilenmann (1819-1896), of St. Gall, did not begin his Alpine career proper till the early 'fifties': in 1855 he made the second ascent of Monte Rosa, while his total list is stated to exceed three hundred and fifty peaks and passes, all in Switzerland or the western portion of the Tyrol. He is probably the first amateur who made high ascents without any companion whatsoever. The Austrians, Karl von Sonklar (1816-1885), Anton von Ruthner (1817-1897), J. A. Specht (1828-1894), and E. von Mojsisovics (1839-1907), all explored different regions of the Eastern Alps, and wrote (this does not, however, apply to the second couple) elaborate works relating to their wanderings.

This list of pre-1865 Continental climbers may suffice, as it includes the chief names of those who have died, though it might easily be made much longer.

The attentive reader may have noticed, perhaps with some astonishment, that hitherto the names of English climbers mentioned in this chapter have been few and far between. The simple reason for this apparent neglect is that before about 1840 very few Englishmen made any high ascents, a fact which is certainly curious. From 1840 to 1855 the number grows, while from 1855 onwards the English explorers of the High Alps carry all before them, even though their number does not come up to that of their foreign rivals.

Up to about 1840 the present writer, who has taken some pains to look into the matter, has only discovered the following high climbs made by Englishmen, including in that term

Scotchmen and Americans. Mr. Hill in 1786 reopened the Col du Géant, and was followed by one or two parties, among which were Mrs. and Miss Campbell (1822), the earliest English lady climbers of whom the names have come down to us. Colonel Beaufoy went up Mont Blanc in 1787, but up to 1840 we cannot reckon more than a dozen English parties which had followed in his steps. Mr. Cade's party crossed the St. Théodule in 1800, and he too had a few successors among his compatriots, such as Mr. William Brockedon (1825), and Mr. Frank Walker (1826). The Zermatt Breithorn was visited in 1822 by Sir John Herschel, and again in 1830 by Lord Minto. In 1828 Mr. Frederick Slade and Mr. Yeats Brown made a valiant, though unsuccessful, attempt to climb the Jungfrau from the Roththal, while in 1826 Mr. Frank Walker crossed the Oberaarjoch and in 1835 Mr. Callander what seems to be the Old Strahlegg Pass. In 1828-9 Mr. William Brockedon visited one glacier pass in the Graians, and went over a number of lower passes, his descriptions forming the basis of Part II. of Murray's *Handbook for Switzerland, Savoy, and Piedmont*, which first appeared in 1838. The list is not long. Yet in it there are no climbs that were made for the first time, save two doubtful exceptions—Mr. Hill only 'reopened' the Col du Géant, known over a century before, while Mr. Callander's guides probably took him over the Old Strahlegg by mistake, without in the least intending to make a 'new expedition.' In short, up to about 1840, English travellers, who were many, showed a deplorable lack of Alpine ambition.

But matters take a different aspect from about 1840 to 1850. True, only four English ascents of Mont Blanc are recorded in that period, though in 1841 a plucky Scotchwoman, Mrs. Cowan, crossed the Strahlegg. But in 1839 we find the names of two Englishmen mentioned as having made some sort of mild high expedition. In that year *A. T. Malkin* (1803-1888) went up the Buét and over the Tschingel Pass, while in 1840 he crossed the St. Théodule twice, and also traversed the Lötschen Pass, climbing the Hockenhorn on the way—in 1843 he went over the Strahlegg, then, beating Brockedon, crossed the Col de la Galise, and followed the steps of Forbes over the Col de Collon and the Col

d'Hérens. In 1839, too, *J. D. Forbes* (1809-1868, later Principal of the United College in St. Andrews) crossed the Col della Nouva (near Cogne) and some passes near Monte Viso, also visiting the Vénéon valley in the Dauphiné Alps. In 1841 he traversed two glacier passes (the Col du Sais and the Col du Sellar) in the Dauphiné Alps, and two in the Bernese Oberland (the Gault Pass and the Obeaarjoch), besides making the second ascent of the Ewigschneehorn and the fourth (the first non-Swiss) of the Jungfrau. In 1842 he went over the Cols du Géant, de Collon, and d'Hérens, and the St. Théodule, ascending from the Col d'Hérens the Stockhorn, near by. In 1844 he ascended the Wasenhorn, near the Simplon, while in 1850 he crossed the Col Blanc (near the Col du Tour) and the Fenêtre de Saleinaz. This list of Forbes's climbs is really superb for the time, and entitles him (without in the least taking into account his immense services to the cause of natural science) to be considered as the earliest English mountaineer, who regularly undertook high ascents for a series of years, for Malkin contented himself mainly with passes. Forbes tells us in one passage of his writings that the Riffelhorn was first climbed in 1842 by some English students from Fellenberg's famous school at Hofwyl, near Berne, but in another place he attributes this exploit to some local goat-herds. If we disregard this peak, as being too low to count, it is Forbes himself who has the honour of having made the earliest 'first ascents' achieved by a British subject, for both his Stockhorn (11,795 ft.), in 1842, and his Wasenhorn (10,680 ft.), in 1844, were apparently virgin peaks, though he is run close by his brother Scotsman, Mr. Speer, who in 1845 made the first ascent of the Mittelhorn (12,166 ft.), the culminating point of the three Wetterhörner. Forbes's book, *Travels through the Alps of Savoy*, issued in 1843, was the first English book (as distinguished from pamphlets, such as those published by the heroes who went up Mont Blanc) devoted to the High Alps. In another way, too, Forbes is important in the history of Alpine exploration, for he tells us expressly that he tried to follow the example set by Saussure in his great work on the Alps, and in 1826 he actually had with him one of

Saussure's guides, J. M. Cachat, nicknamed 'le Géant' (so called owing to his having gone round the Aiguille du Géant on the passage of the col of that name). On the other hand, he encouraged Wills, Tuckett, and Adams-Reilly, in the period from 1857 to 1866, and thus served as a link, so to speak, which bound Saussure to his true heirs, who half a century after his death were just taking up the non-scientific as well as the scientific part of his labours and carrying them towards their ultimate goal.

Even more important than Forbes, so far as regards an active and powerful direct influence on the rising generation of ambitious English climbers, is *John Ball* (1818-1889), an Irishman, who, as years went on, freed himself from the cares of State and devoted himself, more fervently than ever, to his favourite pursuit of botany, which carried him far and wide through every district of the Alps. He had tried Mont Blanc in 1840, also climbing the Grauhaupt and crossing the St. Théodule. In 1845 he discovered and traversed (serving as guide to his so-called Zermatt guide) the glacier pass of the Schwarzthor, near Zermatt, while in 1852 he went over the Strahlegg. But his real Alpine career commenced in 1853 and lasted till 1866. He was up the Gross Glockner (perhaps the first Englishman on this mountain) in 1854, while in 1857 he made the first ascent of the Pelmo (the first great Dolomite peak to feel man's foot), in 1860 tried the yet virgin Marmolata (highest of all Dolomites), and was the first to reach the Cima Tosa (1865) in the Brenta Dolomites. His other ascents were comparatively unimportant, for, as a botanist, passes appealed more to him, and by 1863 (as he tells us himself) he had crossed the main chain of the Alps forty-eight times by thirty-two different passes, besides traversing nearly a hundred of the lateral passes. Of his activity in the early years of the Alpine Club more will be said below. Few men, if any, have ever known the whole of the Alps better than he did, while none did while he was in his prime. Yet in the actual number of high climbs he is only *among* the first, not at the head of the list, partly because it scarcely entered into his plans to undertake high expeditions other than those

which might really assist him in some department (botanical or topographical) of his life's work.

By 1850 the period of preparation had arrived, and English climbers began to occupy the field. Whereas from 1787 to 1850 there had only been seventeen English (including the one American party, and Mr. Nicholson, who went up in 1843 with the Prior of Chamonix) ascents of Mont Blanc to sixteen non-English, travellers of no nationality other than English or American (eleven of these only) made the ascent of Mont Blanc in 1850, 1851, 1852, 1853, and 1855, while in 1854 there were three non-English only, and in 1856 and in 1857 but one. The mere number of ascents and travellers vastly increased from 1854 onwards. The sudden change is startling, and is not altogether to be explained by the great vogue of Albert Smith's entertainment (in 1852) on the subject of his ascent in 1851. It is rather a sign that at last Englishmen were waking up to the fact that 'mountaineering' is a pastime that combines many advantages, and is worth pursuing as an end in itself, without any regard to any thought of the advancement of natural science.

Here let us commemorate briefly a bold young English climber, Eardley J. Blackwell, whose memory now survives only in a few scattered notices, but whose exploits were very remarkable for the date. In 1850 he made the first travellers' passage of the New Weissthör near Zermatt, and traversed the Col du Géant. In 1852 he crossed, in an unusually short time, the Tschingel Pass and the Strahlegg. In June, 1854, he climbed the Hasle Jungfrau (Wetterhörner) from the Rosenlaui side (being the first Englishman to reach the summit). A few days later he tried it from the Grindelwald side, though failing, owing to a violent storm, while the iron flag he planted just below the final cornice was found three months later by Mr. (later Sir Alfred) Wills. On all these climbs he was accompanied by Christian Bleuer, one of the early Grindelwald guides, who does not, however, seem to have been with him when he ascended Mont Blanc early in August, 1854. Mr. Heathman, who met him in that year at Chamonix, tells us that

he made the last-named ascent in two hours less than any preceding party. He thus describes him: 'The fact is, there was no guide the match for him. He was six feet three, rather bony, but carrying no weight; he had the eye of a hawk and the legs of a chamois, combined with the utmost enterprise, perseverance, and courage. He made light of the ascent of Mont Blanc. As to its difficulties, he said they by no means equalled his previous feats, though the time required was longer. He was perfectly acquainted with every nook and corner of the Alps, having walked over them, in them, and among them, forward and backward, up and down, in every direction, for three years. On parting with him for his ascent [of Mont Blanc], I wished him success, and all the pleasure which he anticipated, "Although," said I, "I confess I do not know what that is." He replied he did not know either, except, being an idle man, he loved the excitement, and always felt a desire to do what others had done before him.'

After some preliminary skirmishes, for training purposes, the ball was opened (quite apart from Mont Blanc) in 1854. The establishment of the Hotel on the Riffelberg (1854) greatly facilitated excursions in the neighbourhood of Monte Rosa. In 1847 MM. Ordinaire and Puiseux had made the first attempt on the highest peak from the Swiss side, but the party only reached the Silbersattel, the depression between the two highest summits. In 1848 the two guides of Herr M. Ulrich attained the Grenz-gipfel (15,194 ft.), the point at which the great spur, on which rises the loftiest point of Monte Rosa, joins the main watershed, and in 1851 the brothers Schlagintweit, with two guides, gained the same point. It thus rises to the E. of the highest crest of Monte Rosa, which is crowned by two horns—the Ostspitze and the Dufourspitze—the latter (15,217 ft.) being slightly the higher. Now it was on September 1, 1854, that the Ostspitze was first certainly ascended, the conquerors being three young Englishmen, the brothers Smyth, who were followed on September 11 by Mr. E. S. Kennedy. But neither of these parties, for reasons now undiscoverable, pushed on to the W., over the not difficult ridge, to the very loftiest summit. A few days after

these exploits, on September 17, 1854, Mr. (now Sir Alfred) Wills succeeded in making the first ascent of the Hasle Jungfrau peak (already ascended at least twice previously by another route) from Grindelwald; it had been nearly attained by the same route, on June 13, by Mr. Eardley J. Blackwell, another Englishman, and attempted as early as 1845 by a Swiss party. These two ascents, especially that of the Wetterhorn, which was quite complete, open the era of English rule over the highest summits of the Alps. Next year, on July 31, 1855, a large English party, comprising the Revs. Christopher and Grenville Smyth (two of the heroes of 1854), E. J. Stevenson, and Charles Hudson (to perish in 1865 on the Matterhorn) and Mr. J. Birkbeck, with four guides, at length attained the very highest tip of the loftiest point of Monte Rosa, the second peak in the Alps, then first won by man—they took the now usual route from the Sattel on the W., which does not seem to have been tried before. A fortnight later, on August 14, the two Smyths and Mr. Hudson, with the addition of Messrs. E. S. Kennedy and C. Ainslie, but *without guides*, had the honour of making the first ascent of Mont Blanc from St. Gervais by way of the Dôme du Goûter, thus opening up a new route which enabled travellers to resist the exactions of the Chamonix guides. The party descended from the Dôme to the Grand Plateau and completed the ascent by the ordinary route. It was not till 1859 that a party ventured to push from the Grand Plateau over the Bosses du Dromadaire to the summit, while it was only in 1861 that the first complete ascent from St. Gervais over the Dôme and the Bosses was effected. But the exploit of 1855 was a very great one, and all the more noteworthy because on August 8 previous, the same party, with Messrs. Stevenson and Joad, but without guides also, had very nearly effected the ascent of Mont Blanc from the Col du Géant by way of the Mont Blanc du Tacul; this way had been tried on July 31, by Mr. (now Sir) J. H. Ramsay, who actually reached the Mur de la Côte, whereas the others were driven back from the top of the Mont Blanc du Tacul (13,941 ft.), of which one member of the party made the first ascent in order to reconnoître. Messrs. Hudson and Kennedy

published an account of their feat of 1855 on Mont Blanc under the title of *Where there's a Will there's a Way* (to the second edition, also issued in 1856, there was added an account of the conquest of Monte Rosa), while in 1856 Mr. Wills published his *Wanderings among the High Alps*, that was followed in 1857 by Mr. Hinchliff's *Summer Months among the Alps*; these three works were the first literary products of the new English school of mountaineers, and so are historically very important. In 1856 a number of young Englishmen tried, though in vain, to complete the St. Gervais route by the Bosses, and to strike out a new route up Mont Blanc from the Col de Miage. This party (none of whom have yet been named) represents an accession of numbers to those of 1855. In 1857 still more new men come into prominence. On August 13 the Rev. J. F. Hardy, Messrs. William and St. John Mathews, R. Ellis, and E. S. Kennedy, with a number of guides, achieved the first English ascent of the Finsteraarhorn (the fifth in all, though the second by travellers), while on August 20 Mr. John Ball reached (alone) the lowest of the three summits of the Trugberg, and on September 19 (again alone) the highest point of the Pelmo in the Dolomites, both 'first ascents.' Mr. William Mathews had in 1854 climbed the Mont Vélan, and in 1856 Monte Rosa, and on August 19, 1857, was the first traveller to reach the Pointe de Graffeneire (14,108 ft.), only fifty-six feet below the highest point of the Grand Combin, while on August 7, 1857, Mr. Eustace Anderson, attempting the Gross Schreckhorn, had vanquished the Klein Schreckhorn.

The idea of founding a society to serve as a rallying-point for all Englishmen interested in the novel pastime of mountaineering was first thrown out in a letter written on February 1, 1857, by Mr. Mathews to Mr. Hort. On August 3, 1857, Mr. William Mathews made the acquaintance of Mr. Kennedy, while both were walking down the Hasle valley, a few days before their joint ascent of the Finsteraarhorn. The idea quickly ripened, and took form on November 6, 1857, at a private dinner held at the residence of the Mathews family in Birmingham, several members of that family being present as well as Mr. Kennedy.

If the first idea came from Mr. William Mathews (1828-1901), there is no doubt that it was Mr. Kennedy (1817-1898) 'who was chiefly responsible for carrying the idea into practical effect,' for he it was who communicated with the English climbers of the day, inviting them to join together with this object in view. His letters met with unexpected success; the first meeting was held on December 22, 1857, and the first dinner (for originally the 'Alpine Club' was merely a dining society, hence its name, though it would be better described as an 'Association' or a 'Society') took place on February 2, 1858, when Mr. Kennedy was elected Vice-President, and Mr. Hinchliff (1826-1882) Honorary Secretary; the Presidency was not filled up till March 31, 1858, when Mr. John Ball was elected to the office. The list of 'original members' (several of whom still survive, though two only are still in the Club) contained thirty-four names, but in 1859 there were already one hundred and twenty-four members, while on July 19, 1859, J. D. Forbes was most deservedly elected the first Honorary Member.

It was obvious that the young society must justify its existence to the outer world, then still somewhat sceptical as to the advantages of mountaineering. Its first literary production, entitled *Peaks, Passes, and Glaciers*, and edited by Mr. John Ball, appeared in the spring of 1859, while in 1862 a second series in two volumes, but under the same title, was brought out under the direction of the indefatigable Mr. Kennedy. Both works met with great success, though scoffers were not wanting to predict evil things as to this novel method of trying to break one's neck.

The years that lie between 1859 and 1865 are the 'golden age' of mountaineering. The Chronological List, printed as Appendix II. below, will show how peak after peak fell before the furious onslaught of the youthful enthusiasts. Among the most brilliant lights of that wonderful period, four men (we mention only those who have passed away from us) stand out above their fellows. *William Mathews* swept through the Western and Central Alps, his most glorious conquests (after 1857) being the Eigerjoch and the Lysjoch (1859), the Grande Casse (1860),

Monte Viso (1861), and Mont Pourri (1862, reached first in in October 1861 by his guide, Michel Croz); his explorations in the South-Western Alps and elsewhere form one of the most brilliant pages in the annals of mountaineering, and make one regret that his active climbing career extended only from 1854 to 1863. Next we have *Leslie Stephen* (1832-1904), with his grand bag of Alpine novelties, mainly in the Bernese Oberland—Eigerjoch, Bietschhorn, and Rimpfischhorn (1859), Blümlisalphorn and Oberaarhorn (1860), Gross Schreckhorn (1861), Jungfrauoch, Fiescherjoch, and Monte della Disgrazia (1862), and Zinal Rothhorn (1864), while the Mont Mallet (1871) and Col des Hirondelles (1873), as well as his historic Dolomite wanderings (1869) and his splendid book (1871), belong to a later period. Then we have *A. W. Moore* (1841-1887), the English climber who devoted himself most fervently to the Bernese Oberland, though his list includes many other magnificent climbs—Jungfrauoch, Gross Fiescherhorn, Sesiajoch (1862), the Pointe des Ecrins and the Col de la Pilatte, both in the Dauphiné Alps, and the Moming Pass (1864), the Ober Gabelhorn, Mont Blanc from the Brenva glacier, and Piz Roseg (1865), besides his passages (1866) of the Strahlegg and the Finsteraarjoch in winter, thus opening up a new form of mountaineering. His book *The Alps* in 1864 (privately issued in 1867, published in 1902) is one of the most delightful works on the Alps ever written. And, as we think of these three Englishmen who so loved the Bernese Oberland, let us join with them the Bernese climber, *Edmund von Fellenberg* (1838-1902), whose entire Alpine career, from 1856 to 1883, was exclusively given to that district, which he knew topographically, geologically, and bibliographically, perhaps better than, certainly as well as, any of his contemporaries. Let us also record here the fact that the twelve sheets of the Dufour map which figure the Swiss Alps were published between 1845 and 1865, the name Dufourspitze being conferred in 1863 on the highest point of Monte Rosa (the loftiest peak rising wholly within Swiss territory) by the Swiss Federal Government in honour of the head of the survey thus happily completed (the original minutes on a large scale,

now known as the Siegfried Atlas, were issued from 1870 onwards).

The glorious weather that prevailed during the summer of 1861 was profitably employed to conquer many lofty peaks that had hitherto defied the efforts of puny men to surmount them. The harvest was less plentiful in 1862, the year which saw the foundation of the Austrian Alpine Club, the first child of the Alpine Club. But the year 1863 saw many fresh defeats of proud peaks. It was noteworthy, too, for a series of events which showed how the taste for climbing was extending and developing. In March, 1863, the Alpine Club issued the first number of the *Alpine Journal*, a quarterly intended to appear more frequently than annual or triennial volumes, and the first periodical that was wholly devoted to the mountains. In April, 1863, the Swiss Alpine Club was founded, and in October the Italian Alpine Club. Finally, in July, 1863, Mr. John Ball brought out vol. i. (Western Alps) of his *Alpine Guide*, in the compilation of which all the prominent English climbers of the day had assisted him. Thus the Alps had now a special periodical and a special guide-book of their own. Mr. Ball's second vol. (Central Alps) was issued in 1864, but vol. iii., describing the Eastern Alps, did not come out till 1868.

The climbing season of 1864 was by far the most brilliant that had yet been recorded. Yet its splendour pales before the extraordinary triumphs achieved in that of 1865, as will be seen on reference to our Chronological List (Appendix II.), though this does not reckon in the numerous difficult glacier passes that were forced in these two memorable years.

Shall we say that pride goes before a fall? or shall we count it simply as a last expiring act of revenge on the part of the Spirit of the Mountains? The great exploit of the summer of 1865 was the conquest of the Matterhorn, that proud summit which for years had baffled the most persevering efforts of the most accomplished mountaineers, amateur or professional. Yet on July 14, it, too, had to yield to the foot of man, while the ascent, achieved by a route hitherto never seriously attempted, proved far easier than had ever been anticipated. But, as is

well known, on the descent, a frightful accident occurred, wherein four men perished, while three (Mr. E. Whymper and two Zermatt guides) were saved by the breaking of the rope between the two divisions of the party. Those who died in the moment of victory were the Rev. Charles Hudson (b. 1828), often mentioned above; Lord Francis Douglas (b. 1847), a very skilful mountaineer; Mr. D. Hadow, a young man, spending his first season amongst the Alps; and the guide, Michel Croz (b. 1830), of Chamonix, one of the best of the day. Though this catastrophe occurred quite early in the season, its full effect was not realised till after its close. Never before had so many lives—still less those of three Englishmen—been lost at one time on a high peak, never before had such experienced climbers paid the penalty of a slip, never before had a 'milor's' life ended in such tragic fashion, never before had victory in the Alps been so quickly followed by Death. It was the most dramatic event in a most dramatic year, and the cause of mountaineering seemed to be lost for ever, so deep and lasting was the impression made by this terrible event.



THE MATTERHORN FROM THE COL DES GRANDES MURAILLES

CHAPTER X

MODERN MOUNTAINEERING IN THE HIGH ALPS

THREE days after the Matterhorn accident, and on the very day when that peak was first attained from the Italian side, the present writer made his first Alpine ascent, that of the Niesen, near Thun. Two months later he made his first glacier expedition, the Strahlegg, and visited Zermatt. He was thus one of the earliest recruits to mountaineering after *the* accident, and went on climbing for thirty-three years. Hence he can recollect vividly the sort of palsy that fell upon the good cause after that frightful catastrophe of July 14, 1865, particularly amongst English climbers. Few in numbers, all knowing each other personally, shunning the public gaze as far as possible (and in those days it *was* possible to do so), they went about under a sort of dark shade, looked on with scarcely disguised contempt by the world of ordinary travellers. They, so to speak, climbed on sufferance, enjoying themselves much, it is true, but keeping all expression of that joy to themselves in order not to excite derision. There were then few Club huts and few conveniences in the shape of high mountain hotels. But there was no crowd on the hills, and one could still revel in the silence that reigned among them. The journey from England to the Alps was still expensive and took a long time. That drawback did not affect foreign climbers so much, but even they felt the mountain gloom that prevailed. A glance at our Chronological List of Ascents (Appendix II.) will show that from 1866 till about 1870 not so many important peaks (yet there was no lack of abundance of such peaks to conquer) were vanquished as during the previous five or six years. A closer study will reveal the fact

that the summits which fell in that dark period were the booty of relatively very few men, though this feature was perhaps less well marked in the Eastern Alps. Two personal experiences may illustrate this sorrowful period in the history of climbing. Early in July, 1868, the present writer met, in the Glectstein cave on the Wetterhorn, Mr. Julius Elliott (who was killed next year on the Schreckhorn). In the course of conversation Mr. Elliott revealed, almost under the seal of confession, his strong desire, even his fixed intention, to attempt shortly the Matterhorn from the Swiss side. This feat he achieved a fortnight later, this being the first complete ascent on that side since the accident. It caused a very great sensation, as it proved that the expedition was not so absolutely certain to end fatally as had been imagined by many. The charm had been broken, but it required a man of strong will to break it. Some years later, in 1871, when it fell to the turn of the present writer to ascend the Matterhorn, it was still considered a most remarkable thing that within the same week *two* ascents of the dreaded peak should have been made with complete success.

Little by little the inevitable reaction set in, as it was more and more clearly realised that climbing high peaks did not without fail end in a catastrophe. In 1869 the German Alpine Club was founded, and in 1873 it was united with the Austrian Alpine Club (founded in 1862) under the name of the 'German and Austrian Alpine Club.' In 1870 (despite the war) the number of fine new climbs, especially those made by Englishmen, shows a distinct advance. This fresh start is particularly marked in 1871. In that year also Leslie Stephen published his delightful work *The Playground of Europe*, and Mr. Whymper his remarkable *Scrambles amongst the Alps in the Years 1860-9*, both books stimulating powerfully the new current that had begun to run again after being blocked for several years. In 1871, too, the Alpine Club took a fresh lease of life. It had been held by some that all the Alps being now conquered, its task was over, and that its periodical, the *Alpine Journal*, might well be allowed to expire, through the apprehended difficulty of securing material wherewith to fill its pages. But the appointments, at

the end of 1871, of Mr. A. W. Moore as Honorary Secretary of the Club, and of Mr. Douglas Freshfield as Editor of the *Alpine Journal*, proved the turning-point in its fortunes. In 1861 it had numbered but 158 members, but in 1871 the list rose to 298 and in 1875 to 361. The bold ascent of Monte Rosa from Macugnaga, in 1872, by the Rev. C. Taylor and Messrs. R. and W. M. Pendlebury, showed that the Alps were not yet 'exhausted,' and the lists of new ascents began to increase year by year. In January, 1874, great Alpine peaks (the Wetterhorn and the Jungfrau) were ascended for the first time in winter, both exploits being achieved by the present writer's aunt (whom he accompanied), these climbs indicating also the gradual spread of mountaineering by ladies, which was still in its infancy. In 1874, too, the French Alpine Club was founded, the latest born of the great Alpine Clubs of Europe. The 'revival' was now in full swing and was never more to be checked. Yet it was from the end of the 'seventies' that fatal accidents in the High Alps became more and more common. Hitherto they had been comparatively rare. Now they increased in number even more rapidly than did the rising number of persons who made high ascents. Perhaps this was due to a diminution in the feeling of mystery and awe that had long half-veiled the mountains, perhaps to a lamentable want of prudence, due also to the growing familiarity with the Alps, though not with their dangers. The present writer realised all too keenly this terrible growth in the number of Alpine accidents, for he was Editor of the *Alpine Journal* (in succession to Mr. Freshfield) from 1880 to 1889, and he will never forget the distressing task that awaited him every autumn of telling the tale (in a double sense) of the mishaps of the past season, and then of passing judgment upon the unfortunate victims.

This revived interest in climbing naturally brought with it new developments, whether for good or for evil. Let us therefore pause here a moment in order to mention certain matters that are only indirectly connected with these new developments.

The twenty years that elapsed between 1871-3 and 1891-3 saw

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the completion of the conquest of the Alps, to mention only the most glorious feats of arms—the two summits of the Rosengarten in 1872 and 1874, the Sass Maor in 1875, the Meije in 1877, the Aiguille du Dru in 1878, the Aiguille des Grands Charmoz in 1880, the Aiguille de Grépon in 1881, the Aiguille Blanche de Péteret in 1885, and a whole series of not very lofty but exceedingly difficult Dolomite needles between 1884 (Croda da Lago) and 1890 (the Fünffingerspitze). It saw also the reorganisation of the practical side of climbing—new Club huts were built, new high mountain hotels were opened, detailed special maps and guide-books for climbers only appeared in rapid succession; everything was made more convenient for the new generation, who, however, found that little more was left to them in search of novelty than the discovery of 'new routes' and of 'inaccessible' pinnacles which received names only *after* they had been vanquished. Among the more prominent climbers of the post-1865 period a few may be here commemorated, keeping to our rule that only those are spoken of who are now at rest. *Charles Edward Mathews* (1834-1905), younger brother of William Mathews, began his Alpine career indeed before 1857, and was one of the founders of the Alpine Club. But his best climbs were made after 1865, while his one book, the *Annals of Mont Blanc*, did not appear till 1898. Another devoted lover of the Mont Blanc chain was Charles Mathews's close friend, *Anthony Adams-Reilly* (1836-1885), whose admirable maps of that chain (1865) and of the Southern Valleys of Monte Rosa (1868) are most remarkable, viewed as achievements of a single amateur, for, so far as topography goes, they bear well a comparison with the work of the great Government Surveys. *Horace Walker* (1838-1908), like C. E. Mathews, did much of his best Alpine work after 1865, though his Alpine career began in 1854. He unfortunately wrote but little about his experiences, though he was probably the senior Alpine climber on the roll when his activity came to an end in 1905. Another name cannot be passed over, although comparatively little has been published as to his climbs, which began before 1857—the Swiss *Eugène Rambert*

(1830-1886), for the 5 vols. of his *Alpes Suisses* (1866-1875, new edition in 6 vols., 1887-9) contain but few personal impressions of his ascents. And his name cannot be separated from that of his pupil, so to speak, *Émile Javelle* (1847-1883), a Frenchman by birth, but a Swiss by adoption, whose *Souvenirs d'un Alpiniste* appeared in 1886. Of the younger or post-1870 generation the following adventurers are associated with some magnificent, if too daring, feats of climbing. *A. F. Mummery* (1855-1895) devoted himself mainly to the Mont Blanc Aiguilles and to the Matterhorn, so far as the Alps were concerned, but he also climbed in the Caucasus and perished in the Himalaya—his one book, *My Climbs in the Alps and Caucasus*, was issued in 1895, just before his untimely end. Then we have *Ludwig Norman-Neruda* (1864-1898), most cosmopolitan of mountaineers, for he boasted of having no fewer than seven mother-tongues. He was most fascinated by the Dolomites, which figured largely in the posthumous collection of his writings, published in 1899. It was during this later period from the early seventies onwards that the 'Austrian school of mountaineers' made its mark and startled many steady-going persons by the extraordinarily bold exploits of its members. Its chief was *Ludwig Purtscheller* (1849-1900), who climbed in every district of the Alps, so that his list of high ascents is nearly, though not quite (so he personally assured us, after his last climb) equal in point of mere numbers to that of the present writer. His articles were collected after his death by his friends in a volume entitled *Ueber Fels und Firn*, that was given to the world in 1901, though his excellent guide for mountaineers in the Eastern Alps, the *Hochtourist in den Ostalpen* (written by him in conjunction with Herr H. Hess), first appeared in 1894 in 2 vols., and is now in its third edition (3 vols., 1903). Next to him comes *Emil Zsigmondy* (1861-1885), who was mainly attracted by the Eastern Alps, in particular by the Dolomites, though he was killed on the Meije in the Dauphiné Alps: his writings, too, were posthumously collected in 1889 under the title of *Im Hochgebirge*, while it is sad to relate that his excellent booklet on the *Dangers of the Alps* was issued just

before his tragical end. Junior to both, but a remarkable personality among the most daring climbers of his day, was *Robert Hans Schmitt* (1870-1899), who, in his short career, accomplished what had previously been considered as impossibilities in the Dolomites.

Of Italian climbers who have passed away two deserve mention as most successful and persevering explorers of the Piedmontese Alps—*Martino Baretto* (1843-1905) and *Luigi Vaccarone* (1849-1903). Both published only articles as to their personal experiences and climbs. But the former issued many tracts on Alpine geology, while the latter (being an archivist by profession) paid much attention to the local mediæval history of the Western Alps. He also put forth a most interesting monograph (1881) on that strange tunnel pierced about 1480 beneath the Col de la Traversette, near Monte Viso, a work of unequal value (1884) on the history of the Passes of the Western Alps, and a most useful list of First Ascents in the Western Alps (excluding however, the main Dauphiné Alps), that reached a third edition in 1890. Much of Signor Vaccarone's practical knowledge of the Alps was incorporated in his admirable guide-book (executed with the aid of two friends), the *Guida delle Alpi Occidentali* (3 vols., 1889-1896), which, despite its general title, treats almost exclusively of the Italian slope of the Western Alps.

Here it may be convenient to say what we have to say as to the numbers of the great national Alpine Clubs, premising that the English Club is the only one that requires a high climbing qualification for membership, the foreign societies being content with the expression of an interest (sometimes very Platonic) in the mountains. The Alpine Club increased from 298 members in 1871 to 361 in 1875, 444 in 1881, 509 in 1891, 611 in 1901, and 677 in 1908. The numbers of the chief foreign Clubs at the end of 1907 were approximately the following: the German and Austrian Alpine Club, about 78,500; the Swiss Alpine Club, about 9700; the Italian Alpine Club, about 6500; and the French Alpine Club, about 5600.

Let us now describe and appreciate the new developments

of mountaineering that have taken place in the last thirty years or so, that is, since the revival, though they did not follow it immediately.

One of the first points that strikes an old stager like the present writer is the rapid decline of the habit of making long journeys in the High Alps, so as to include in the same season a visit to several districts. This involved crossing many passes, peaks being climbed on the way or during a short stay at some favourite Alpine resort. But nowadays, though there has very recently been a slight revival in this respect, most mountaineers choose some 'centre' for their season's work, settle down there, and explore the high peaks in the immediate neighbourhood, carefully avoiding passes as far as may be possible. It is obvious that such a plan has great conveniences—one gets good rooms at the selected hotel; one is comfortably installed for some time with plenty of luggage; one enjoys the society of a set of congenial spirits, who almost form a coterie; one has not, save rarely, to sleep away from one's temporary home. But hotels well situated for such a manner of spending one's holiday are not too numerous, looked at solely as starting-points for high climbs. Stopping, too, in one place tends to narrow a man's interests, especially if he goes back again and again to the one chosen spot, for though he may know it in great detail, he loses the benefits of change of surroundings, not to say of atmosphere. Such a 'centrist' reminds one of the man who should fix himself in Florence or in Rome, and then plume himself on his knowledge of Italy. The Alps are wide, and each resort has its own particular charms, as well as drawbacks. It seems a pity not to give to places other than one's favourite haunt some little chance, even if one's wanderings confirm the belief that the chosen spot excels all others. At any rate, a wanderer has seen the 'world,' and knows more than his own village. The fashion of 'traversing' peaks, that is, going up one side and down the other, accounts in part for the disfavour into which passes (except where they offer special difficulties or dangers) have fallen. Yet the

crossing of a great pass is most interesting. The scenery shifts from hour to hour, and that breaks, at least in part, the monotony of tramping over long snow-fields. One gets a far better idea of the topography of a region than one can obtain by an hour's stay even on the most admirably situated summit; one feels that a real journey has been made from one place to another, and not merely a day's excursion from home and back. The present writer has tried both 'wandering' and 'centre-dwelling,' and has no hesitation in preferring the former, though occasionally a halt of a few days at a centre forms an agreeable interlude and a rest from perpetual journeying. However, tastes will always differ on this point. Here we have only wished to lay stress on the certain fact that the older climbers 'wandered,' while their younger successors settle down at 'centres.' Yet, as hinted above, there are not wanting signs that a few of the climbers of to-day have rediscovered the delights of 'wandering,' and the fact that the difficulties apprehended as to luggage and language are not so formidable as they appear to be at first sight.

A second characteristic of modern mountaineering is the strong preference shown for rock peaks and the almost passionate dislike felt (after one has done one's 'duty peaks') for snow mountains. To some men rock clambering is the one and only form of mountaineering. No matter about the height, or position of the peak, provided it offers a good scramble or an exciting climb. In some ways this tendency is a 'throwback' to the greased pole enthusiasts at whom Ruskin used to gibe. No one can maintain that the ascent of a difficult snow peak is not quite as great a tax on a man's energy and nerve as that of a rock needle. But on a rock peak it is clear that certain difficulties of a snow ascent (*e.g.* crevasses, step-cutting, etc.) are avoided, though rocks have dangers as well as fascinations, peculiarly their own. The amusing point is that rock men now look down disdainfully on the few snow men who still venture to hold up their heads. With them it is not a question of preference, but of exclusion. No one, they urge, can be considered a mountaineer, unless he

is a rock climber, pure and simple. From this point of view, the scaling of the smallest rock tower is as enjoyable as is that of the highest rock needle—all depends on the difficulties encountered *en route*. This explains why of recent years so much attention has been paid to the Dolomites in the Alps and to the rock pinnacles around the English Lakes. Granting, for the sake of argument, that the training for pure rock climbing can be as well obtained in either region as in the snowy Alps, the undoubted fact remains that what at once distinguishes the Alps from these ranges is the fact that the Alps are permanently snow-covered, that they possess glaciers, and ice slopes, and the like. Hence nothing can possibly take their place, and the mere rock climber deprives himself of at least half the training of the all-round mountaineer. Of course, a man may in general prefer rock to snow. That one can understand, and that depends on his personal qualifications, for these vary with the character of the climb. But in making the above remarks we have been rather thinking of the man who only climbs rocks and scoffs at snow, or, if compelled for his sins to ascend a snow peak or to cross a snow pass, vents his dissatisfaction by complaining of 'that horrid snow grind'! Probably the younger generation of mountaineers are better rock climbers than were their predecessors, but it is as certain, in the opinion of the present writer, that they are distinctly inferior, generally speaking, to the older race of mountaineers. *They* sought a route, if possible the best, though that is rarely discovered on the occasion of a first ascent, up a peak, while the newer generation looks deliberately for *the* most difficult route, and has no rooted objection to a certain amount of inevitable danger. But surely there is room for both types, though, as is usually the case with 'wobblers,' those who practise first one, then the other form of climbing, are regarded with contempt both by the snow and by the rock men. Just so the genuine ski man cannot stand the equally genuine tobogganer, while both jeer at the poor wretch who prefers his own feet to any form of artificial locomotion.

Closely connected with this frantic devotion to rock climbing

is the great shadow and blot on present-day mountaineering—guideless climbing in the High Alps by incompetent persons. This, in the opinion of the present writer, who knows that he does not stand alone in holding very strong views on this matter, is the plague spot in Alpine matters at the present time. Notice that we do not condemn guideless mountaineering in itself, but only when it is practised *in the High Alps* (that is, roughly, above the snow-line, or in the case of difficult ascents, without regard to the height of the peak) *by incompetent persons* (not by those, always a select number, who, with companions of the same stamp, are entitled to undertake first-class expeditions). It is quite true, and sadly true, that first-rate amateur climbers have perished in the Alps, for there, as in the case of hunting, yachting, shooting, dangers exist which cannot be avoided if the circumstances are favourable for them, while a mishap, an ‘accident’ in the strict sense of the term, is always possible—even the best athlete may break his neck by falling down stairs, or slipping on a pavement, or be run over by a railway train.

Now guideless climbing by competent men is no very new thing. We have mentioned above the splendid feats of Messrs Hudson and Kennedy’s party on Mont Blanc as far back as 1855, while in 1870 Mr. Girdlestone devoted a whole book to the subject, illustrating it by the thrilling recital of his own exciting experiences between 1864 and 1869. Still later, the first guideless ascent of the Matterhorn, which took place in 1876 (the present writer was at Zermatt that day) by Messrs. Cust, Cawood, and Colgrove, was a wholly justifiable expedition. The three members of the party had all considerable practical acquaintance with the High Alps; they took every precaution as to choosing a day when weather, etc., were favourable; they did not try to make a ‘record’ in any respect, whether as to time or anything else. None of them had ever been up the peak before, so that all the more credit is due to the success that crowned their efforts. In 1878 Mr. Frederick Gardiner, and the brothers Charles and Lawrence Pilkington, decided to carry matters one step further, attacking peaks which had never been climbed

previously, and as to which therefore no practical information could be obtained from printed sources. They succeeded admirably in their emprise. Hence in 1879 they startled the Alpine world by mounting the Meije (but thrice vanquished previously), an undoubtedly first-class rock peak, while in 1881 they showed that they were many-sided by an ascent of the Jungfrau from the Wengern Alp, admittedly one of the severest and most trying ice climbs in the Alps. Like the party of 1876, they waited till all was favourable for their enterprises, they took all possible precautions when on the way, they knew each other well and so could reckon confidently on each other in case of an emergency, and they had carefully studied their intended route beforehand so as to be quite clear on the subject.

It is impossible, of course, to fix the precise date at which guideless climbing began to be *abused*. But no one can doubt that one of the first signs of the change in men's views was the tragic death of Emil Zsigmondy on the Meije in 1885. A few days previously, he and his friends had successfully accomplished the traverse of the ridge between the Grand Pic and the lower Central Summit. Flushed with victory, they attempted to force a new and still more difficult route up the south face, and it was on this attempt that the misfortune occurred. All three climbers (two only took part in both climbs, the third man being different on each occasion) were first-class men, but there are limits even to human skill and human daring, and, in the opinion of the present writer, these were overstepped on that occasion.

Without, however, entering upon the vain task of trying to fix precisely the year when the bad side of guideless climbing became prominent, let it suffice to say that for the last fifteen or twenty years it has been coming more and more into the foreground. Mountaineering has become popular, even fashionable, after its temporary eclipse. The vast increase in the number of published detailed descriptions of climbs, special guide-books, large scale maps, discussion in public prints has largely destroyed the veil of mystery that had long

half hidden the great peaks. It is thought that rock peaks must offer safer climbing than snow peaks, with the probability of step-cutting, finding one's way through an ice-fall, etc. The expenses of travelling have been greatly reduced, and that allows many men to indulge in climbing who had not previously dreamt of this comparative luxury. There has been a distinct decline (far more marked on the Continent than in the case of English climbers) in the social status of those who tried high ascents, and this led to a different kind of men embarking upon difficult expeditions. Without much previous experience, trying to cut down expenses as far as possible, never having travelled with guides, ignorant of the etiquette that had grown up in Club huts, which they could use gratis or for a small fee, bound to make their climbs on certain days, as their holiday was very short, they are inclined to run risks that would have deterred the older generation; for unless the weather was extremely bad, it is absolutely necessary for them to complete the climb in time to catch a train to bring them home at the appointed hour. Add to all these drawbacks the fact that many of the newer climbers (particularly in Switzerland and Austria) are occupied all the week in sedentary pursuits (as clerks, students, workmen, etc.), and it will be admitted that an entirely new phase of mountaineering has been opened. Hence, beyond a doubt, the frightful increase in the number of accidents in the High Alps, due for the most part to sheer carelessness and to neglect to take the most obvious precautions, these defects being in their turn the results of the relative inexperience and ignorance of the young fellows who *at once* flew at the highest game, and often paid the penalty of their foolishness.

Every climber ought to know, that on a high ascent much depends on the condition of the peak that very day. The Matterhorn can be a very easy ascent, but it can also be a very terrible undertaking. Mont Blanc by the ordinary route from Chamonix is a walk under favourable circumstances, but at times it can beat the Matterhorn hollow as to danger and difficulty. The Wetterhorn often changes from day to day, so that a party may

scamper up it one day, and, next day, the ascent may offer very considerable difficulties, and still greater dangers. Hence the idea that every peak can be classified irrevocably as 'very difficult,' 'difficult,' or 'easy,' is utterly absurd. The early guideless climbers learnt this truth while they climbed with guides, and, by watching their professional companions, could store up many a useful hint (quite apart from any question of actual path-finding) that was to be of service to them later on. But the newer climbers, having never travelled with guides, lacked this useful knowledge. Having heard that a certain peak was easy, they held that it was always easy, and so could be attacked safely. No or little consideration was paid to weather conditions, ice conditions, snow conditions, rock conditions, or even to the bodily condition of the climbers the day of their ascent. All those who have climbed for a time know how one's body varies in condition, often from day to day, and the extreme advantage that a man who has trained himself that summer has over another, perhaps in every way physically stronger, who has come straight from his desk or his office. But the young fellows we are thinking of have often only the Sunday free, perhaps also a few hours on Saturday afternoon, but must be at their post on the Monday morning, or it will know them no more. Hence in summer one now regularly reads in the Monday or Tuesday paper of the deaths that have occurred on the mountains (by no means always on the high mountains) on the preceding Sunday. Yearly the death toll is greater, and though, as we pointed out above, there must always, in all pastimes, be pure 'accidents' which can be classed as inevitable, yet it must be allowed that many of these Sunday accidents might very well be avoided, with a little more care, a little more experience, a little less rashness, a little more thought for relatives, friends, and even the outside world.

It is but a step from being told that one is 'as good as a guide' to the conclusion, why then take guides? And here, in the opinion of the present writer, the Swiss Alpine Club has, with the best intentions, committed a grave mistake (no other Alpine Club seems to have adopted the system). Since 1900

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it permits amateurs (being members of the club) to sit for the same guides' examinations as young professionals, and grants to them, on passing, a certificate or 'Diploma,' signed by the Central Committee, but not recognised by the Cantonal Government. Professionals receive, on the result of the same examination, a 'Patent' or 'licence' from their Cantonal Government. The result frequently (of course by no means always) is that the amateur, holding such a diploma, is not unnaturally tempted to dispense with professional assistance, and not seldom comes to great grief. The plan tickles the innocent vanity of a few amateurs, but may well result in disaster, for it is the fixed opinion of the present writer that it is impossible, save in a few most exceptional cases (which prove the rule), that an amateur *can* be as good and capable *all round* as a professional glacier guide—mark the words 'all round,' for in certain respects the amateur may surpass the professional, though falling below him in other points, so that we must strike an average if we desire to arrive at general conclusions.

Let us admit to the full the very real advantages that guideless climbing does possess. It without doubt develops the sense of self-reliance, of independence, of true saving of money, of pure enjoyment with a few congenial companions, of pleasure in tracking out one's own way, of feeling perfectly free to go where one will. Yet, on the other side, we have the indisputable fact that amateurs cannot possibly have had the same continuous bodily training as professionals, and this not merely because the amateur spends a few weeks at the most in the mountains where the professional spends his entire life. Quite apart from any question of path-finding in fine weather (and the amateur will almost always be better able to read a map or use a compass than a professional guide), how *can* an amateur decide in the twinkling of an eye as to the state of the snow, how *can* he possess the inherited and accumulated weather wisdom of a guide, how *can* he hope to vie with a professional in such tiring work as step-cutting, carrying weights, and so on? A guide, too, used to such surprises in his ordinary life, will be less demoralised than an amateur if a sudden mist comes on, or if the party be overtaken

by bad weather, or loses its way on trackless snow-fields or in the mazes of a crevassed glacier. Amateurs, of course, vary, just as much as do guides. But in these pages we are thinking of really capable amateurs and good glacier guides. It is not hard to find an amateur who under ordinary circumstances can find his way up a well-known peak in fine weather nearly if not quite as well as a guide. But the comparison is neither fair nor complete unless we take into account bad weather, and labour that makes a heavy demand on bodily strength, and such like. In that case the superiority of the professional is very well marked. One of the earliest and most successful of guideless English climbers has often assured the present writer that two of the greatest disadvantages of amateurs are, first, the tendency to relax attention when the chief difficulties are over (*e.g.* crossing an apparently uncrevassed glacier) and the excitement is past; and, secondly, the great tax on the physical energies of an amateur of having to carry provisions, however they may be reduced in bulk, whereas the guide is used to weight-carrying from his boyhood. Our friend, too, who has travelled with some of the best guides in the Alps, allowed to us unreservedly that, though he and his friends could carry through a difficult climb quite as well as many guides, they could not do so with the professional finish and neatness that comes from a lifelong training. It is simply the old question of the superiority, as a general rule, of professionals or specialists in any department over amateurs. Every general statement, of course, has its exceptions, but these are so few in number that they impress one only by their rarity and scarcity.

There are several other points which are often overlooked when the merits of guideless mountaineering are discussed. As is well known, the leading guide of a party is responsible before the law for the safety of his party, and may be punished severely if he has neglected his duties. But guideless climbers are under no legal responsibility towards one another. Again, it is frequently urged that the tariff of fees for guides is absurdly high. Now it is true that the fees at first sight do seem to be high. But it must be borne in mind that they refer to travellers

in general, not only to skilled climbers. Hence the amount that would be adequate in the case of a traveller who has to be helped very much would be absurd in the case of a more practised climber, for the former not merely gives much more work to his guide, but is also a source of greater danger by reason of his inexperience. Besides, every one knows that, as a rule, a good climber can make a special arrangement with a guide. In all his thirty-four years of climbing the present writer has very rarely paid the full tariff price for any high expedition. Of course, if a guide is taken only for one or two climbs, the fees will not be reduced proportionately as if he were engaged for several weeks. After all, guiding is a profession, or, more strictly, a 'by-profession,' exercised only in summer (rarely in winter or at other times), and is the guide's means of livelihood by which he mainly supports his family, unless he has some other trade at which to work when not acting as guide. He cannot, therefore, be expected to face unnecessary dangers and perils, at the bidding of his employer for the time, who, on his side, may not be cumbered by family cares and expenses. It therefore seems very hard on a guide to accuse him of cowardice or want of enterprise, for, after all said and done, mountaineering is a pastime, not a gamble for one's life, and the limits of prudence are well known, though not always observed.

A guideless climber, too, does not always remember that the more guideless mountaineering spreads, the worse it is for the professional guides, who are a picked lot of men, and exercise an honourable calling. By all means let the few really competent amateurs, who can never be a very numerous body, amuse themselves by emulating their professional rivals. But let them beware of encouraging by their words or by their writings incompetent men to follow their example. *There* is the great drawback of guideless mountaineering from the point of view of the general public. Let the guideless climbers also be more modest than is *sometimes* the case, and above all let them refrain from throwing mud or casting contempt on professional guides, whose bread they are taking out of their mouths, but whom they expect to call in as rescuers should any mishap occur

to a guideless party. Quite recently an amateur climber permitted himself to direct a most fiery attack against Swiss guides in general. But in his paper he admitted that he had not made a dozen climbs with guides, and then in most cases only with the very best men, so that, as his critics at once pointed out, these facts at once put him out of court when he sat in judgment on average glacier guides. Another writer boasts loudly that he and his friends, without guides, completed the exploration of a certain district in the Alps. But when, on inquiry, it turns out that this vaunt really refers to the scaling of a number of not very high and rather unimportant rocky points, which had been purposely disdained by previous explorers as beneath their attention, one gets some idea of the childlike fashion in which *some* guideless climbers blow their own trumpet.

Few English readers save those who devote special attention to Alpine matters have any idea to what extremes the pursuit of guideless mountaineering has actually been carried in the Alps. A few examples, all dating from the last few years, may help to open their eyes. In 1903 a party of eight young men set out from Geneva (bearing with them, it is said, a ham and several loaves of bread as provisions) to ascend Mont Blanc. They seem to have been insufficiently equipped and to have had little or no experience in climbing. By a sort of miracle seven of them, though after very many hours' toil, really did attain the hut on the Aiguille du Goûter. But a great storm came upon them, they were struck by lightning, and were only rescued, alive though wounded, several having remained senseless for hours, by the heroic efforts of a party of guides. The storm was really a mere unfortunate detail, for the party were in nowise fitted for the climb, even in the finest weather. In 1905 two young Swiss tradesmen (one holding the 'Diploma' of the Swiss Alpine Club, as amateur guide, having gained it, so it is stated, with great distinction) attempted the Jungfrau from the Wengern Alp. They both perished on the way, how exactly is not known, as only one body was found. A few days before the same really difficult climb had been tried by two young apprentices (one a blacksmith, the other a joiner) resident in

Grindelwald. Both perished, another proof, if one was wanted, that mere bodily strength and vigour are not sufficient equipment for a high mountain ascent. In the autumn of 1906 it was discovered that nothing had been heard of two young Germans, who, alone, had started for the ascent of the Jungfrau from the Roththal two months before. A strong search-party from Lauterbrunnen was organised, which could discover no trace of the two travellers, but did discover, very high up, the body of a man, who turned out to be a baker from Beckenried, who had attempted this expedition alone, armed with an alpenstock. A short time ago a Swiss friend told the present writer that, while walking about the Lower Eismeer at Grindelwald, he spied two men working up the ice-fall (where no one goes) that separates it from the Upper Eismeer. After much shouting the two men were induced to return. They proved to be two wandering apprentices, who were armed only with an umbrella and a walking-stick respectively, and were trying to make their way cheaply from Bern to the Vallais. They stated that their intention was to climb the Jungfrau (they were proceeding in quite a wrong direction), and, arrived there, to take the railway (of course not yet constructed) down on the other side. This case, like those of the baker and the two Grindelwald apprentices, are cited here to show how much harm guideless mountaineering can do by inducing unfit persons to undertake climbs far beyond their capacity. One cannot, of course, fix the blame on any one guideless party, but the way in which some of the members of such parties brag about the absurd easiness of this and that climb comes to the ears of other ambitious young men, and results in disastrous consequences.

Thus, as we started by remarking, guideless mountaineering in the High Alps *by incompetent persons* is the black cloud on the good cause at present. Unless this new current is forcibly checked and diverted, much lasting harm will be done, and mountaineering will be looked upon askance as was the case for years after 1865. It is the duty of competent guideless climbers (and such are to be found) to warn weaker men

that while such a climb has great charms, it should not be undertaken unless under favourable circumstances and by more or less trained mountaineers. Otherwise the ambitious but inexperienced novices will have to pay the natural penalty.

Forty odd years ago Leslie Stephen (one of the crack climbers of his day) speaking officially as President of the Alpine Club, and at a date previous to the Matterhorn accident of 1865, made the following most wise remarks, the flavour of which has only become more mellow with time, so that we commend them heartily to the best attention of our readers:—

‘In my opinion, if ever it becomes fashionable for English travellers to attack the High Alps without guides and without due experience, the era of bad accidents will begin. . . . According to my experience, no traveller that I have ever seen would be worthy to be ranked as even a second-rate guide. The difference between professionals and amateurs, generally pretty well marked, is wider in this than in almost any sport, and for the simple reason that there is a greater difference in experience. The guide has been practising during his whole life, the amateur during a few vacations, of which the first was probably after the time at which athletic sports are best learnt.’

CHAPTER XI

ALPINE GUIDES

IN the early days of January, 1129, a host of pilgrims was waiting anxiously at the S. foot of the Great St. Bernard, till the inclement weather allowed them to cross the pass in the direction of their homes: it is the abbat of St. Trond, near Liège, who tells us the sad tale. Avalanches poured down from above, the snow blew into great drifts, some pilgrims who ventured to start were suffocated. Their companions, crowded together in the small village of St. Rhémy, were in deep despair. Suddenly some local men offered to go on ahead in order to beat down a path, so that the pilgrims with their horses might follow in their steps. This offer, and the price demanded, were gladly accepted, and the valiant men set forth, though a fresh avalanche soon overwhelmed them, killing some, maiming others, and so putting an end to the expedition. For us in this chapter the interest lies in the description of these men, the first Alpine guides of whom a record has come down to us. We are told that they wrapped their heads in felt as a protection against the cold, drew coarse mittens over their hands, pulled on their high boots, of which the soles were furnished with sharp iron spikes to prevent them from slipping on the ice, and carried in their hands long poles wherewith to sound for the path through the deep snow. The name given to them is 'marones,' a word of uncertain derivation, that was specially applied to the guides on the Great St. Bernard (there it still survives in the form of 'maronnier,' the chief of the men who sally forth to rescue passing travellers in winter) and the Mont Cenis, though it is occasionally used with regard to

other Alpine passes. They were equipped with all sorts of articles such as are still more or less used in making high climbs, though of course in this passage there is no reference to such adventurous feats. 'Crampons' or 'Steigeisen,' a sort of second sole of iron or steel, furnished with sharp spikes (in 1129 the iron spikes appear to have been fastened direct to the boot soles) and placed under the leather sole of the boot, being attached to the foot by straps, are often mentioned by later writers, while both the lord of Villamont in 1588 on the Rochemelon, and Arnod on the Col du Géant in 1689, speak also of iron claws to be attached to the hands. Arnod, too, had 'hâchons' with him, a sort of elementary ice-axe, no doubt, while spectacles to protect the eyes from the glare of the sun on snow are mentioned by Jacques Le Saige in 1518, and by Josias Simler in 1574. The last-named writer also speaks of the use of the rope and of *raquettes* or snow-shoes, as well as of the benefits of thick paper or parchment as a means of protecting the body against piercing cold. We have seen above that in 1492 Antoine de Ville employed ladders wherewith to scale the Mont Aiguille.

But of course in early days all these implements were only used in the case of crossing in winter passes which in summer are quite easy, and accessible to mules or horses. On the Mont Cenis the 'marons' were particularly skilled in bringing down travellers from the pass to Lanslebourg on a sort of toboggan or wooden sledge, this fashion of lugging being called 'glisser à la ramasse.' They were capable, however, of better things, as a Breton nobleman, the Seigneur de Villamont, tells us in his amusing account of his ascent of the Rochemelon in 1588. His two 'marons' carried the provisions, they took care of their employer when he became fatigued and half frozen with cold, gave him wine to drink, tied crampons and iron claws to his feet and hands, and apparently pushed him up by placing their arms under his shoulders. Thanks mainly to them he reached the summit of his peak, and rejoiced much in the wonderful things he saw thence, so that 'he forgot all his past labours and his soul was filled with an incredible joy.' Later, on his

return to France, Villamont tobogganed down the other slope of the Mont Cenis, perhaps looked after by the same two men or 'marons.'

These two men of 1588 are the first real Alpine guides who took, as far as we know, a traveller up a high peak, for the companions of Antoine de Ville on the Mont Aiguille in 1492 were rather labourers charged to hew a way to the top and to set up ladders, than guides properly so called.

Many years later we find that the men who acted as guides on high ascents were generally chamois hunters, who feared the upper regions less than other men. This was the case in the ascents of the Scesaplana in 1742, of the Buet in 1770, and of the Mont Vêlan in 1779, and in many later cases. On other occasions we hear only of bold peasants, no hint being given as to their profession, or again of shepherds or of smugglers, who were very useful when the peak rose on or near a frontier. These were the classes from which the early mountain guides were taken. We should add crystal-hunters in the case of the Chamonix men, and also the men employed by Government map surveyors, who were naturally chosen for their local knowledge, and could not fail to become the guides of the future.

Of course the earliest professional guides are found at Chamonix, for their powers found an opportunity for display in the course of the attempts on and early ascents of Mont Blanc. So we find in the first lists of Chamonix guides, published before the end of the eighteenth century, the still familiar names of Balmat, Cachat, Couttet, Tournier, Charlet, Dévouassoud, and so on. The Chamonix guides, too, were the first to be organised into a special association, in 1821 or 1823 (the dates given vary). In 1813 one of M. Maynard's guides on the occasion of the first ascent of the Zermatt Breithorn was a Couttet, and in 1830 Lord Minto, on the same climb, had no fewer than nine Chamonix guides with him. The Chamonix men long kept the pre-eminence they had won so early, the latest to wander far from their native mountains, as well as among them, being Auguste Balmat (1808-1862),



THE JUNGFRAU (BERNESE OBERLAND) FROM THE EISENFLUJCH

the guide and friend of Forbes and Mr. Wills ; the brothers Jean Baptiste Croz (1828-1905) and Michel Croz (1830-1865), the latter a victim of the great Matterhorn accident ; and François Dévouassoud (1831-1905), the life-long guide of Mr. Douglas Freshfield, and the charming companion of the present writer in 1867.

The guides on the early ascents of the Gross Glockner were carpenters by trade, because they had to set up a cross on the top. The Meyers on the Jungfrau and Finsteraarhorn in 1811-12 had two Vallais chamois hunters, Joseph Bortis and Alois Volker (the first known Vallais guides), as well as a Guttannen man, Arnold Abbühl, who later made himself a considerable name, and had been picked up as the party passed his native village. In 1812 the fourth man, Kaspar Huber, was in all probability a servant at the Grimsel Hospice, as Abbühl certainly was in 1828, when he accompanied Hugi. The Hospice later became quite a nest of good glacier guides, for the landlord was obliged to keep many servants there (mostly, of course, from Meiringen, far down the same valley of Hasle), and naturally they would accompany to the glaciers any travellers who desired to visit them. This Hasle school was particularly strong in the years 1840 to 1845. These men then came to the front as the guides of Desor and his companions in the ranges round their headquarters on the Unteraar glacier. The boldest of them all was Melchior Bannholzer, who with J. Jaun (also a Meiringen man) vanquished (1844) for the first time both the Hasle Jungfrau and the Rosenhorn peaks of the Wetterhörner. Jakob Leuthold (who died quite young in 1843), Johann Währen, and several Abplanalps were also good Hasle guides of the time, while the still surviving Melchior Anderegg (b. 1828), one of the most famous of all guides, started life (in 1855) as a servant at the Grimsel. Indeed, it is quite singular to notice how many great peaks of the Bernese Oberland were first conquered by Hasle and Vallais men.

Yet there were early guides at Grindelwald and at Lauterbrunnen. The first Grindelwald guides we hear of are Peter Baumann (1800-1853) and Ulrich Wittwer, who took a German

traveller in 1826 over what seems to be the Finsteraarjoch. Baumann was apparently a leader of men, for it was he who headed the six Grindelwald peasants (including Ulrich Wittwer, Hildebrand Burgener, Christian Baumann, Peter Moser, and Peter Roth) who climbed the Jungfrau from Grindelwald in 1828. Most of these men later became professional guides. In the next generation at Grindelwald was Christian Bleuer, who, with Peter Baumann and Hildebrand Burgener, is mentioned in *Murray* from 1842 to 1865. He was with Mr. Blackwell in 1850-4, and did a certain amount of climbing in the early days. Later he seems to have organised parties, acting as director, but having younger men to do the work under him. Two of these under-studies became far more famous than himself—Peter Bohren (1822-1882), surnamed the 'Gletscherwolf'), and Christian Almer (1826-1898), the best guide who ever lived, who climbed from before 1851 till 1897, never had but two accidents in his life, could boast the most brilliant conceivable list of new and difficult ascents, and yet died peacefully in his bed, surrounded by his family. The present writer counts it a great privilege to have been able to travel with Almer for seventeen summers and three winters, and to be in the closest relations of friendship with his son and namesake, in whose house these lines are written.

The Lauterbrunnen men come before the world as glacier guides first in that grand year 1828, in connection with Hugi, and Messrs. Brown and Slade's attempts on the Jungfrau from the Roththal: the familiar names of Lauener, Bischoff, and Gertsch occur then already. Some of the great Grindelwald men were summoned over by Hugi to help the local climbers. Most famous of all Lauterbrunnen guides was Ulrich Lauener (1821-1900), who was the leader on the first ascent (1855) of Monte Rosa, though it was so far away from his native valley. The Oberland guides were first organised in 1856, and so at a much later date than their Chamonix rivals.

Guides elsewhere developed on the whole later, though J. Brantschen, of Zermatt, crossed the Schwarzberg Weisssthor

about 1825, and another Zermatt man, A. Damatter, was a senior guide in 1845, when Mr. John Ball consulted him.

The Pontresina men were organised in 1861, and at later dates the men of other regions who desired to become professional guides followed suit. But in the remoter and less visited Alpine districts guides in the proper sense did not exist till quite recently. As lately as 1876 the present writer engaged the best chamois hunter at St. Christophe, in the Dauphiné Alps, as his local guide; but, though he had already done one or two climbs with travellers, it was not till after his conquest of the Meije in 1877 that Pierre Gaspard developed into a professional guide.

We have used the term 'professional guide' more than once above. It should always be borne in mind that it is meant to distinguish those who guide for their livelihood from amateur guides. Of course, guiding is not and cannot be a regular profession, for as a rule it is exercised only in summer, though of recent years the time for high climbs has been extended, while Alpine guides have been engaged to explore extra-European ranges. In the Alps, therefore, guiding is rather a 'by-profession' than a regular profession. No guide, practically speaking, is a guide and nothing else. That is the way he spends part of his time, and earns most money. But save in the rarest cases, guiding occupies him during only two or three months of the year. Hence for the other nine months the guides must do something, for it is a totally erroneous belief that, save in summer, guides are entirely idle. It would be truer to say that summer is their festival time, when they are better fed, better lodged, better clothed than at other times of the year, while, as against the undoubted dangers of their calling, there are to be set certain cash advantages. All Alpine guides are peasant proprietors in the first place. Hence during the nine months or so when they are not guiding, they are occupied with cultivating their land, taking care of their cattle, felling wood for fuel, etc. In early summer the cows go up to the high pastures, so that their owners are free, while hay is largely made after the summer-climbing season is over. Many guides, too, follow regular trades—some are carpenters, or blacksmiths,

or butchers, or keep small shops, or hire themselves out, in the case of the poorer men, as day-labourers, haymakers, etc. Others occupy official posts in their native valleys—so at Grindelwald both the President of the Commune and its treasurer are actually glacier guides. Thus it is not in accordance with facts to think of the guides as forming a distinct class, sharply cut off from other men of the valley, and exclusively devoted to one calling. Guiding is simply the summer occupation of a certain number of picked men in each Alpine valley. As cash circulates little among Alpine peasants, save in the case of those who have to do with foreign visitors, the guides are generally among the well-to-do men in their respective districts. But like their betters, they prefer not to be thought too well-to-do, in view of the taxes that may be imposed upon them. Some years ago, in a certain Alpine valley that shall be nameless, the local authorities were at their wits' end to raise some more money for public purposes. A shrewd member of the ruling body conceived the ingenious idea of levying an *extra* income-tax on the guides of the region. But as the guides in that valley are numerous, and so possess considerable voting power, it was decided to levy this new tax on certain guides only, selected because it was supposed that they earned more than their fellows. Twelve men were picked out, and a demand note was served on each to the effect that he must declare what he expected to earn during the coming summer, and would be taxed on the amount he stated. The twelve held a meeting at once—it lasted a whole night—protesting against this unequal treatment, and pointing out (what was obvious) that it was impossible to estimate what their earnings might be for the next summer, as they could not possibly tell beforehand what the weather conditions might be like. They finally decided to return the demand notes not filled up, without any statement or estimate of their possible professional income. But this ingenious device of getting round such an obnoxious measure was baffled by the still more crafty communal authorities. They resolved to tax each of the twelve on an estimated guide's income of 1000 frcs. Every man of the twelve paid without demur the annual tax of eight frcs., for, as one of them explained to the

present writer, 'the authorities might very well tax us on a higher amount (and of course our earnings are much more than 1000 frcs. a year), so we think it better to pay and have done with it, rather than run the risk of being assessed at a higher sum.' Since then peace has reigned in the valley, and both sides are quite satisfied with the result.

Another misapprehension as to guides should be carefully guarded against. Enthusiastic writers, who sometimes know less than they imagine, are inclined to regard as future guides all the boys they see playing about an Alpine village. As a matter of fact, perhaps one in ten of any such boys becomes a guide, at any rate a glacier guide. That class does not include, far from it, all the able-bodied young men of a given valley, but merely a small proportion of them. The exact proportion depends on many factors, but is never very large, for a glacier guide (and in these pages we deal only with such) must possess certain qualities that are by no means found in the case of all his comrades, guides or non-guides. An instance, based on accurate figures will show what the real facts are. At the end of 1906, in the valley of Grindelwald, there were about eighty-three licensed guides (glacierguides or ordinaryguides) out of a male population of about 596 over 20 years of age, below which no man can be admitted as a guide. Now notice that these 83 men were by no means all glacier guides—shall we say that only perhaps 30 or 40 of them had ever ascended the Wetterhorn or crossed the Strahl-egg?—while some had practically retired through age, or infirmity, though unwilling to acknowledge the fact. Of these 596 men about 330 were over the age of 50, while 109 were between 20 and 32, 88 between 32 and 44, and 69 between 44 and 50—in all, 266 below 50 to 330 over 50. Naturally most guides are below 50, though there are exceptions which will occur to any one's mind.

Let us assume then as proved that only a comparatively small number of the young men in any Alpine valley do become glacier guides (of course the case is different as to the early guides, who became such because they were chamois hunters, and acted as guides before they received a licence). We are thus naturally

led to the question what is it that decides a young fellow to become a mountain guide rather than a tradesman, an artisan, a hotel servant, a waiter, a driver, a stableman, a cow-herd, or a cheesemaker, all callings that are open to an Alpine youth, and involve, as a rule, less perils than does that of a glacier guide?

Till the age of eighteen or twenty the boys and youths pass very much the same kind of lives, whatever is to be their future calling. As early as the age of three or four an Alpine boy is well used to managing his small sledge down steep snow slopes in winter, even if it be only around his father's house. They thus learn much unconsciously as to the varying character of the snow at different times, and, though summer snow is not quite the same as winter snow, it is snow of a kind. They acquire, too, habits of dexterity as to their legs, which may easily be injured if they do not manage them properly, as well as of watchfulness as to critical bits of the steep snow slope down which they love to career so madly. It is surprising to find what small boys are taken in winter by their fathers, or uncles, or elder brothers, or wander off with chosen comrades, towards the high pastures that stretch above their native village. For several winters running the present writer met a small boy (first when he was only five years old) climbing with his father up heavy snow slopes for some 2000 feet above his home, and then, in the afternoon, returning merry and untired, on his sledge, or else dragging behind him a young sapling for two hours or so. It is all play to the boys, and so is delightful, while naturally the father is imitated, sometimes quite comically, at every stage. At the age of seven the boy goes to school, but of course he goes there, in winter, on his sledge. In the afternoon he is free, so that then he can toboggan, or run about, or carry up coffee to his father at work among the hills. Often, on a holiday, a band of quite small boys will wander over hill and dale, or else make, with the entire school, or its upper classes, a great excursion, say over the Wengern Alp. At school the boy is taught gymnastics of a simple kind, so that his small body gets well trained in many fashions. At the age of ten he will generally be set to chop wood for the use

of his father's household. Later, he will be sent out to look after the sheep or goats, or to lead them up to the high pastures, or to bring them down, the more valuable cows being under the charge of the older men. As they advance in years these boys hear about the ascents of the high peaks around their valley, for few have not some relative who is not concerned in some way with that source of money-getting. Very possibly they will offer their services as path-finders on small excursions to foreign travellers, for the summer is the school vacation, and so they are free, save when wanted to do jobs at home. But it is very rare for an Alpine boy (however strange it may seem to be at first sight) to set foot on a glacier before he is twelve or fourteen years of age. A lad aged twelve and a half years once made, with his father, his uncle, and the writer, the ascent of one of the peaks of the Wetterhorn, and was regarded with feelings of wild envy by his school comrades. His father had been up the Schreckhorn at the age of fourteen, and he was thought to be a sort of infant prodigy. Schooling ends by sixteen. But the youth begins to work (if he has not already begun to work) as a labourer on his father's homestead, or to help his father bring down hay in winter from distant barns, or to fell and then transport the trees felled in autumn for use as fuel. Now there are few forms of training more effectual and useful for a future guide than bringing down heavy logs of wood on a big sledge in winter. It is a very great strain on the legs; it requires considerable nerve and dexterity, so that bodily strength is by no means all that is required; it involves danger of death or mutilation if the sledge is allowed to gain too great momentum, and so pass over the body of the man sitting in front of it—every winter there are accidents, arising from some mistake as to managing these heavy sledges. Thus a lad must have some presence of mind and be ready to alter his tactics as the heavy weight behind him sways from side to side, or threatens to overwhelm him.

Now, as we have said above, the training we have described is much the same for all the healthy boys of an Alpine valley till they have left school. Then comes the question of the future

career of each. Some naturally drift to one or other form of industry, wherein their special personal tastes or likings or qualifications will be of use to them. Much, too, depends, as always in similar cases, on the father's occupation, for his boys naturally incline towards the industry with which they have been most familiar from their youth up. Some decide to become guides, pass a rather easy literary and practical examination, and obtain their certificates as full-fledged guides, though this cannot happen before they are twenty years of age and possess the necessary bodily qualifications. It is odd, however, to find some men acting as glacier guides who yet have been refused, at the same age of twenty, as recruits for the Swiss army. A very slight physical defect ensures rejection (fifty to fifty-five per cent. of the young fellows available are refused annually), and yet that man may become an excellent guide. Several cases of this kind are well known to the present writer.

But all guides are not glacier guides. In fact, it is only the minority of guides who even desire to become glacier guides. The writer has never forgotten his very earliest experience on this point. On his first walks in the Alps, he had been taken round by a pleasant-spoken young fellow, who showed him all the sights of the valley and was an agreeable companion. But when the writer, fired by the desire of attempting a glacier expedition, albeit only the passage of the Strahlegg, intimated his intention to this young man, the 'guide' declined politely but firmly, on the ground that *he* never undertook such dangerous expeditions! Glacier guides then form a set apart, and are thus picked men.

Now even if a newly fledged young guide desires to enter this select class, it is not always easy for him to do so. He may have more than the requisite physical strength, quite sufficient mental outfit, a laudable ambition to do great things. But he is given no chance of attaining his object and falls back into the common ruck. Two circumstances that may fairly be called accidental have a decisive influence on the early or future career of an ambitious young guide. One is the question whether he belongs to an 'hereditary guide family' (for we are not thinking



THE SOUTHERN AIGUILLE D'ARVES (DAUPHINÉ ALPS) FROM THE COL LOMHARD

of the very early guides, but of the present generation, their descendants), or has any 'guide connections,' such as relations with hotel porters, who have the opportunity of recommending one or another guide. If our young fellow has no such advantages, his first steps will be very laborious and painful. One man, who certainly in his day would have been reckoned in any list of first-class guides, assured the present writer some years ago, that, having no such 'family connections,' he had had a very hard time at first, and, in order to learn his trade thoroughly and the way about, had acted as porter (though a fully licensed guide) for many long years. With him perseverance and patience won the day at last. It is, of course, but natural that fathers and uncles and elder brothers should prefer to take with them the younger members of their own families, and teach them (rather than outsiders) the tricks of the trade which they themselves had learnt in their day. Yet, while some outsiders do by constant and long-continued exertion manage to gain admittance to this charmed circle of glacier guides, other lads, who by birth belong to it, do not care to make use of their advantages and opportunities. Tastes differ here as elsewhere.

The other accidental circumstance to which we alluded above is the question whether a young guide has the luck to get chosen as the constant companion of some active amateur climber. Quite apart from the prospect of a continuous engagement, rain or shine, and so of continuous wages, the prospect that such an engagement opens out to a young and ambitious guide may be very brilliant. Not merely do two such comrades get to know each other very thoroughly in storm and stress, as well as in peace and sunshine, but the sphere of action of the young guide is much widened. An amateur rarely, save for some special reason, cares to make the same climb more than once. Hence his own particular guide is transported from his native valley, sees many other mountain districts, and gains much more experience. Unless a local guide is taken (and even sometimes when one is taken), our young guide will be much thrown on his own resources: he has to climb mountains or cross passes that

he has never seen before, his intelligence is stimulated by the absolute necessity of learning how to read maps, his ideas are enlarged by visits to lands where his own language or dialect is barely, if at all, understood, he learns to put up with the inevitable inconveniences of travel, his responsibility becomes heavier. Of course, not every young man is quick or capable of availing himself of the advantages that may accrue to him from such a comradeship. But the present writer has two cases in his mind's eye, in both of which the young fellow eagerly seized on the opportunity offered and did his best, most successfully, to profit by it. It is said that long engagements are no longer so common as of old. More's the pity from the point of view both of the amateur and of the guide. Yet the great advantage of being able to count year after year on the same employer is well recognised by the guides themselves, who say sometimes, rather pitifully, or it may be with a spice of malice, of a colleague, 'Oh, he has no longer any *Monsieur*,' meaning that the man in question must be content with chance engagements, which depend much on the weather and on other accidents.

Now among glacier or high-mountain guides there are men and men. Putting aside any accidental circumstances, the difference largely consists in a difference between one man and another. Whether the instincts of a first-class guide are natural or are acquired is rather an idle question, for acquired instincts, when the occasion arises to profit by them, are practically equivalent to natural instincts. Among the qualities that mark off a first-class guide from another guide are the gift of path-finding (especially of retracing a route previously taken in the opposite direction); the physical strength to undergo hard bodily labour, such as long-continued step-cutting; the power of deciding, without hesitation, what is to be done in that exact state of the weather or of the snow; the faculty of preserving his presence of mind if and when a crisis arises; the strength of will, regardless of any possible consequences in the future to his professional reputation, though only among silly people, of insisting on retreat if he deems it desirable. In drawing out this list (which might be easily lengthened) the writer has con-

crete cases in his mind's eye. In his opinion, the best first-class guides ought to possess the qualities that are required of capable non-commissioned officers in the army, and it is curious to discover in many cases that the guide who has proved his mettle *is* really a non-commissioned officer in the army of his native land. If it be desired to select a single test by which to judge of a man's guiding-power, we should be inclined to ask that the candidates should be placed, each in command of a party, on a crevassed glacier, known to them, but then enshrouded in a thick mist. Here again it is not so much the actual finding the right way to take that counts, but rather the power of keeping calm and composed when, as is always the case, the rest of the party is demoralised by the sudden descent of a mountain mist, blotting out all landmarks, and even the tracks made on the way up, owing to the slight snow-fall which often accompanies it at high altitudes. A good man, whatever his private anxieties may be, will keep up the spirits of his party by being cheery and encouraging, allowing no member to indulge in useless lamentations or complaints, keeping all on the move, looking after the husbanding of the provisions, in case of later need, leading, laughing, hoping, helping his companions in every way. If, under such circumstances, a guide gets his party out of their predicament, there must be something else very much against him, or the writer would unhesitatingly award him a first-class certificate. But be it recollected that first-class guides are very rare; perhaps not twenty could be named in the whole chain of the Alps at the present time, and very likely the really good men are not those who enjoy a great public reputation—it all depends among what kind of amateurs that reputation is enjoyed.

The present writer has travelled so long with absolutely first-class guides that he has perhaps an unduly high estimate of the qualities that ought to be possessed by a man laying claim to be reckoned in that category. To him, an old stager, the modern race of younger guides seems to fall far below their predecessors. They are perhaps better mannered, they may speak foreign tongues with greater facility, they are dressed *à l'anglaise*, in

knickerbockers and Norfolk jackets, they wear a cock's feather in their hats *à la tyrolienne*, they can ski, they can skate—it would be too much to say that they *cannot* guide, for a few of them can certainly scramble up rock pinnacles. No doubt, they have not had the opportunities enjoyed by their fore-runners, and for that they cannot reasonably be blamed. Their practical experience is therefore much more limited, and is generally confined to the peaks and passes in the immediate neighbourhood of their own valley. But to us they seem to lack the nerve, the dash, the sterling qualities of the guides of the good old days. *Then* the best men were like generals, commanding a small force; *now* the best men are more like servants, simply obeying orders and carrying them out as they can. But perhaps these criticisms are simply the groans of a croaker, whose recollections of the 'good old days' have, let us say, become mellowed in the course of time. It may be so, but the recollections are very pleasant, and as the writer does not climb any longer, the matter has really but a sentimental interest. Those who 'wandered' in the old days will most certainly agree with him, and be as sure, as he is, that nothing *could* surpass the enjoyment then gained, though, perhaps, their predecessors would not be inclined to admit to the full that they had not had the monopoly in their time. However, to each generation its special joys and sorrows, among the mountains as elsewhere. The youngsters of the present day, in their turn, years hence it is to be hoped, will find their thoughts revert to the earlier years of their climbing period. One may, of course, be deceived, but it is just those first years, when one is in one's prime, that one enjoys Alpine climbing most keenly, and that the recollections of ascents then accomplished, and of the trusty guides who then really led their party, are the freshest and the most vivid. May present-day mountaineers be able to recall, when the time comes for them to retire from active climbing, something dimly resembling those delightful experiences which their predecessors from say 1870 to 1890 can recall! If such is their good fortune, they can better enter into the memories of one who became a mountaineer in the dark days between 1865 and 1870.

CHAPTER XII

A YEAR'S ROUND IN THE ALPS

FEW persons, save those lucky individuals who are actually natives of the Alps, can have had such good fortune as has been the privilege of the present writer in the matter of prolonged and detailed acquaintance with that glorious mountain-chain. Since 1865 no summer has passed by during which he has not visited them, while he first saw them in their winter garb in December, 1873—January, 1874. Little by little his summer sojourns amongst them lengthened at both ends. He tarried longer in the autumn and arrived earlier in the summer, so that finally it was hard to decide if his visits did not melt at either end into winter or spring. Then in March, 1896, he came to reside in the lovely Alpine valley of Grindelwald, where these words are written. Since that date, over twelve years ago, he has but rarely quitted them, and then only twice for more than two or three weeks at a time. Hence few, not being natives of the Alps, can know the mountains better at every season of the year, though unluckily the keenest appreciation does not carry with it the power of conveying that appreciation to others, or even of expressing it in words. Yet some attempt must be made to picture the Alps at varying seasons, so as to round off our account, albeit in an imperfect fashion.

The vast majority of Alpine travellers see the Alps in summer first, and in summer only. This is in part due to the fact that holidays generally come in summer, and that the Alps are the 'play-ground of Europe.' Without doubt, summer in the Alps has great advantages. The winter and spring snows have gone or are going; the meadows and pastures are gay with a mul-

titude of delightful flowers (till the scythe lays them low or the cows eat them up), and so afford an admirable foreground for the great rock and ice summits that tower above them; everywhere hotels are open; the railways are in full working; the coolness of the Alpine air is deliciously refreshing to any one who flies from the heat of the plains; it is possible to sit in long rapt admiration of the wonderful scenes that are unrolled before one's eyes; the sky, especially when one has attained great heights, is all but black in its dark azure hue—in short it would seem that no season could be more favourable for a long stay among the Alps. Yet those who know them best are most aware that the summer is not the real life of the Alps, but simply a hectic and feverish interval of restlessness and movement (not merely of tourists) that barely fills a quarter of the year. As the summer advances the flowers disappear, for the cattle mount higher and higher, and the snow melts more and more, thus greatly facilitating mountain excursions, but at the same time leaving the great peaks either rock masses of nearly unrelieved black, or shining glassy ice, but without the delicate veil of snow that adorns them at other times. The tourists become more and more numerous, though those who know can still find nooks unprofaned by the madding crowd, nooks that the discoverers keep carefully to themselves, or reveal only to a few like-minded friends. By the end of August the tender grass and the flowers and most of the snow have all gone, and one almost seems to see the skeleton of the mountains without any flesh upon or around them. The effect is monotonous and wearisome, as must be admitted by every traveller who has seen the Alps in mid-June and at the end of August. Black or blue-black is the true colour of the Alps in the height of summer, and it is but slightly relieved by glimpses of blue and green, both these hues tending to become paler and more effaced as the weeks roll on.

At the end of August there is almost always a considerable snow-fall in the Alps, which at once drives away the tourists who imagine that winter has already set in. Those who are wise keep up their courage amid the driving snow, and are all but

always plenteously rewarded. The autumn snow throws a delicate lace veil of purest white over the naked bodies of the great peaks, softening the blackness of the rocks and the dim, uncannily shining of the ice upon them. It is true that the high mountain pastures are not of such a heavenly green as in the early summer. But, by way of compensation, the trees (other than pines) and the brushwood on the hillsides assume most wonderful russet-brown and reddish-gold tints which glow like fires and illuminate even the ugliest slopes. There are few more marvellous sights than the valley of the Lütchine between Grindelwald and Interlaken in October. The cattle come down amid general rejoicing, the count of cheese, butter, hay is closed, and as October deepens into November and December the Alps and their inhabitants prepare for the winter. Yet often till late in November, despite morning rime, and occasional snow flurries, the air is so mild and the sun so warm that on a fine day it is a perfect delight to sit out or to make excursions to some well-known hay hut on the upper pastures. The fences that have guarded the hay meadows since early summer are now thrown down, and one can wander at one's will over them, without need of troubling about the growing grass. Then, too, if living in a high Alpine valley, one reads, with full appreciation of one's good fortune, about the 'sea of clouds' that broods, damp and choking, over the plains below, while above one is revelling in the keen pure air and cloudless sky and restful quiet after the departure of the noisy throngs.

Some readers may be inclined to object that such glories must be of most exceptional occurrence. Certainly there are bad autumns when it rains or snows with scarcely a break, but then there are also summers of similar character. It is far better to assume in both cases that normal weather conditions prevail, and then the glories faintly indicated above will be the lot of the enchanted visitor, who dares brave prejudice and visits the Alps at a non-fashionable time of the year.

As autumn advances the dwellers in an Alpine valley resume their ordinary avocations after the distractions of the summer. Cow-herds, milkers, cheesemakers, guides, porters, drivers, rail-

way men, and so on, throw aside the occupation which brings grist to the mill. They become once more simple peasant proprietors, busied with the care of their cows, now back from the summer pastures, with receiving each his proper proportion of cheese made on the mountain pastures in the summer, with bringing down hay from the heights (profiting by an occasional snow-storm), with felling the trees in the forests that will serve as fuel during the winter or as materials for the repair of the house or of the stable, or for the construction of new buildings. Every one is now absorbed by the duties of his real life, and has cast off for nine months the artificial restraints that have bound him during the summer. One may know well some celebrated mountain guide, or a railway station-master, or the lord of some cheese-hut, each amid their summer surroundings. But it is not at first easy to recognise them, freed from knickerbockers and Norfolk jackets or uniforms or rough overalls, and clad in the simple clothes, woven perchance in the valley itself, that constitute their everyday attire for the greater part of the year. Such rough but serviceable clothes are admirably adapted for the hard work that is the daily portion of every able-bodied man in an Alpine valley. They cease to think of foreign visitors, and become athletic labourers. As winter comes on—but this is rarely before the middle of December—these men bring down on great sledges the late hay and the logs that have been prepared in the autumn, or the fallen leaves of trees carefully collected together to be used as stuffing for mattresses, or pine-cones for the family fire. The dexterity required to manage a heavy sledge weighing (without its tackle) some forty pounds (this has had to be carried on the man's shoulders in the early morning, while at the same time he makes a track) is most remarkable, and practice is absolutely necessary, as a moment's faltering or slip unwarily made means death or serious mutilation. These tracks are, of course, much improved by the descent of the heavily laden sledges on their downward journey, and are most useful for foreign visitors, though they do not always lead to the desired spot, but only to the 'cache' where wood, now deep in snow, has been piled up in autumn. The air is keener and crisper and colder than in

autumn, while, of course, the sun is no longer so high above the horizon. But if there is no wind, even really intense cold is but little felt, while a short climb up from the valley lands one in the brightest of sunshine, warm and grateful, if of short duration, though daily increasing in this respect. The soft snow and the sparkling rime on the pines glitter brilliantly in radiant sunshine; the sky above is of a wonderful blue, though less intense and dark than in summer; the whole effect, on a fine winter's day, is one of light blue and silver. Walking is a joy (we pass over the modern imported distractions of skiing, tobogganing, and skating), and that even when (or because) it is necessary to fight one's way through deep snow, reaching one's goal with a proud feeling of having earned it by hard work, and with one's body filled with a glow that often is perilously near fever-heat. Yet, if winter joys in the Alps are great, there is one great drawback to this season from the picturesque point of view. A uniform dress of snow covers all the hills, great and small, so that the great peaks are dwarfed and the small ones gain in apparent stature. It becomes hard for an unpractised eye, or for a man who does not know the region in summer, to say definitely that such and such a peak is really several thousand feet higher than another which seems to tower over it. Distances become deceptive and heights a delusion and a snare. Yet to those who are familiar with these scenes at other seasons than winter there is a great charm in studying the dear old faces under their novel aspect, and in painfully (in the literal sense of the word) forcing one's way along a well-known path, marvelling that a little frozen water, fallen from above, can so transform and beautify one's favourite haunts. To the present writer winter is the most delightful season in the Alps, coupled with early summer, if the weather is fine.

Winter in an Alpine valley ends in March, though there is often a foretaste of spring in February, while winter visitors know too well how often a horrid thaw sets in regularly about New Year's Day, just when they fondly imagine that they are in the very heart of winter. By March and April the spring avalanches begin to fall with power and might from the great peaks, which

have kept a dignified and majestic silence all through the winter. This means the awakening of nature and of man, though neither has been asleep in the winter, like the marmots. Preparations must be made for sowing grass and potatoes and perhaps a few cereals. The cows issue occasionally from their winter-quarters, blinking at the unaccustomed light of day, and unsteady on their half-numbered legs. The village school starts a new year with Easter, and that means that the boys and girls of sixteen are sent out into the world, after an education completed (in the Protestant districts) by Confirmation at the hands of their beloved pastor. New life is visible everywhere. The crocuses and later the gentians peep shyly through the snow, which has kept the earth warm all the winter long; the sun's rays gain force and power, lingering lovingly on the valley and on the village nestling in its hollow, not far above the stream; a tender greenness colours in an amazingly short space of time the fields, next the gardens, first the lower pastures, then the higher pastures, and creeps up steadily from day to day. The slope that extends at the foot of the great peaks becomes once more delicately beautiful and lovely; the mountains still wrap themselves in fragments of their winter dress, that clings to their flanks while not burying them beneath an impenetrable cloak. In short, the Alpine world is green, and that is the colour of an Alpine spring. But spring in the Alps as elsewhere is a variable and fickle quantity, and brings with it many disappointments.

Such are the colours of the Alpine year—black and azure in summer, russet-brown and reddish-gold in autumn, pale blue and silver in winter, and tender green in spring—such is Nature's palette in the Alps.

CHAPTER XIII

THE VARIOUS DIVISIONS AND GROUPS OF THE ALPS

IN the preceding pages (save in the two historical Chapters, VII. and VIII.) we have treated of the Alps as a whole, considering first their principal physical characteristics, next their inhabitants and their history, and finally the exploits of the bold adventurers who have conquered their loftiest pinnacles. We must now study the great chain more in detail, and discover the characteristic features which mark off one region from another, our attention being largely devoted to the physical aspect of the Alps, for the inhabitants of the several districts have been spoken of above (Chapter VI.). Let it, however, never be forgotten that all physical divisions of the Alps are purely artificial, and are adopted simply for reasons of practical convenience; the inhabitants of the Alps in every part of the chain live, too, very much the same life, and closely resemble each other, apart of course from questions of language and religion, though the dwellers in the higher valleys are distinguished by many special traits from those who have their home in less rugged and more productive regions.

A.—THE MAIN DIVISIONS OF THE ALPS

A few writers have proposed to divide the Alpine chain into two great divisions only—the Western Alps and the Eastern Alps. But though these two divisions are, roughly speaking, of about the same extent, this plan is open to several objections, quite apart from any geological considerations, of which no account is taken in this work. We naturally associate the term ‘Eastern

Alps' with the Tyrol, but these writers use it in a wider sense and include under it the eastern part of the Swiss Alps. Further, the designation of 'Western Alps,' as employed by these writers, takes in not merely the Swiss Alps, but all the French Alps, and most of the Italian Alps, so that there is no clear line of distinction to be found, and that, after all, is the principal object of creating any divisions at all. From a practical point of view some account *must* be taken of the linguistic and political conditions prevailing in the Alps, which this division tends to ignore or confound. Other writers include in the 'Western Alps' all, or nearly all, the Swiss Alps, but this system is open to very much the same kind of objections as the former.

The most generally recognised Divisions of the Alps are the Western, the Central, and the Eastern Alps. Such a scheme corresponds pretty well to the chief political and linguistic divisions, though of course no plan for splitting up a continuous chain can ever approach ideal perfection. This is best realised as soon as we attempt to fix the limits between the divisions selected.

As stated in Chapter I., the subject of this book is the Alpine chain proper, as distinguished on the one side from the Apennines, and on the other from the hills that extend towards the borders of Hungary. Hence the Col de Tenda, at the one extremity, and the Radstädter Tauern, at the other, mark off the 'Alps' in the sense in which we employ the name in these pages. It is generally admitted that, within these limits, the most practical course is to select other great Passes across the main chain as the spots at which more minute divisions can best be made. The following scheme is that which best approves itself to the present writer, who has visited all parts of the Alps, save the central Bernina and the Bergamasque Alps, as well as the ranges of North and Central Tyrol and of Bavaria, and those rising at the S.E. end of the chain.

1. **The Western Alps** (from the Col de Tenda to the Simplon Pass).—Our starting-point is naturally the Col de Tenda (6145 ft.). But where are we to fix the point of division between this

group and the Central Alps? There is no trouble at all about the main watershed, which is well defined and clear till near the borders of the Tyrol. Its direction, too, is, from a comparatively short distance from the Col de Tenda, roughly north and south, while it (also with one exception, in the Maritime Alps) forms the actual frontier between France, on the W., and Italy, on the E. The Little St. Bernard Pass seems to form, at first sight, the best line of division, for, soon after, the main chain bends gradually towards the E. through the range of Mont Blanc. But, in common parlance, that range, containing, as it does, the loftiest summit in the Alps, is usually reckoned as part of the Western Alps. If we include it, however, in that division, we find that, as for historical reasons its N.E. extremity is Swiss, Switzerland (no longer France) and Italy henceforward are the political owners of the chain. To add to our perplexities, we further discover that if we fix the point of division at the Great St. Bernard Pass, E. of the Mont Blanc chain, and not far from the spot at which the main chain takes a decidedly eastern direction, we should be obliged to cut asunder the loftiest and best-known range of the Alps, the Pennine Alps. This clearly cannot be done without blurring one of the relatively few facts as to the Alps of which most people are aware, and such a course would be opposed to the reasons of practical convenience, which are the sole excuse for making any divisions at all. Hence we must place our point of division further to the E. than the Great St. Bernard. The best spot seems to be at the Simplon Pass (6592 ft.), which is commonly held to mark the eastern extremity of the Pennine Alps, and now boasts of a great international railway line that burrows beneath it, while, just as from the N. extremity of the range of Mont Blanc, Switzerland takes the place of France on the non-Italian slope. It is true that from the N. end of the Mont Blanc chain to the Simplon a great independent range, generally called the Bernese Alps (though parts of it are in other Swiss Cantons), faces us on the other side of the deep-cut Rhone valley. But that valley very clearly separates the Bernese Alps from the Pennine Alps, while the junction of the former range with the main watershed of the Alps takes place much farther to

the east than the Simplon Pass, and at the very head of the long Rhone valley. Hence, all things considered, the Simplon forms practically the most convenient line of division between the Western and the Central Alps.

2. **The Central Alps** (from the Simplon to the Reschen Scheideck Pass).—Starting from the Simplon and wandering eastwards, which is the next great pass that may be adopted as the point of division between the Central and the Eastern Alps? Three offer themselves at once to our consideration—the Maloja (5935 ft.), the Reschen Scheideck (4902 ft., sometimes called inaccurately the Malserheide), and the Brenner (4495 ft.). As regards the first, the main watershed from the Simplon as far as that spot is perfectly distinct, while Switzerland and Italy are still the political rulers of the two slopes. But the great practical objection to the adoption of the Maloja is that it would throw the whole Engadine valley, as well as its loftiest summits, the Bernina range, into the Eastern Alps. Now the term 'Eastern Alps' has to the average English reader a flavour of the Tyrol, and the Lower Engadine alone was ever Tyrolese historically. The Brenner, on the other hand, forms an almost ideal line of division. For centuries the main means of communication between Germany and Italy and one of the best-marked depressions in the Alps, it cuts across the great chain at a spot before this has split up into several parallel ranges, as is the case farther east. But, to the mind of the present writer, the Brenner has one fatal defect, looked at from our point of view—it is situated to the E. of most of the highest Tyrolese peaks, and its adoption would force us to include in the Central Alps some of the most important ranges of the Tyrol. Hence it seems to the present writer that our choice must finally fall upon the Reschen Scheideck, coupled with its natural continuation to the N., the Arlberg Pass (5912 ft.). It shares, indeed, with the Brenner the disadvantage that the main watershed between it and the Bernina Pass is ill-defined, and that a portion (in this case, however, a very small portion) of the Tyrol is thus included

in the Central Alps. On the other hand, the Reschen Scheideck lies W. of most of the great Tyrolese peaks, which therefore very properly fall to the share of the Eastern Alps, while the deep-cut upper valley (the Vintschgau) of the Adige (the Eisack valley, down which runs the Brenner route, is its tributary) on its southern slope is rightly described by Mr. John Ball as 'one of the most remarkable features in the orography of the Alps'; thus no part of Swiss territory comes into the Eastern Alps. One drawback the Reschen Scheideck certainly possesses from our point of view, but is not the absolutely ideal a will-o'-the-wisp? If we follow the trough of the Adige from Mals at the immediate S. foot of the pass, we find that the mighty Ortler group, comprising the culminating points of the Tyrolese Alps, has most inconsiderately been placed by Nature to the S. and W. of that great valley. But it is obvious that the principal Tyrolese peaks ought not to be torn asunder from their neighbours. Hence from Mals, at the S. foot of the Reschen Scheideck, we must devise a purely artificial line of division. We must draw our practical boundary first to the head of the Valtelline or the upper Adda valley, either over the old historical Umbrail Pass, or over that of the Stelvio, which became well known only after it obtained its carriage road in the early portion of the nineteenth century, while the Umbrail had to wait for the first years of the twentieth before it secured the same boon; the choice of one pass or the other has, however, little practical importance, for if the routes separate at Mals, they rejoin high up on the other slope of the Stelvio. From Tirano, near the head of the Valtelline, another carriage road leads E. over the low and well-marked Aprica Pass (3875 ft.) to the Val Camonica, down which we follow the course of the Oglio, which forms the Lake of Iseo, to near Brescia, which is only some forty miles E. of Verona, where both the Reschen Scheideck and the Brenner routes reach the Italian plain.

Thus, according to our division, the Central Alps are wholly Swiss and Italian, save the N. slope of the Silvretta and Rhätikon groups, as well as one small bit W. of the Reschen Scheideck Pass, and another from that pass to Mals and so up

to the Stelvio, for on the Umbrail route Switzerland comes down close to Mals.

3. **The Eastern Alps** (from the Reschen Scheideck to the Radstädter Tauern).—The line of division to the W. has just been discussed, the only doubtful point being the choice between the Umbrail and the Stelvio, while that to the E., corresponding with the E. limit of the chain of the Alps in general, was settled in Chapter 1. Thus, according to our scheme, the Eastern Alps are wholly Austrian (including the Trentino on the S. slope) and Italian, with the sole exception of the limestone hills of Bavaria, far away at the N.W. angle of the region.

B.—THE PRINCIPAL GROUPS OF THE ALPS

Such being the main lines that mark off, not merely the Alps from other ranges, but the three great divisions within the Alps themselves, we must now go on to consider the various groups which can be distinguished inside each of the three principal divisions. In selecting them we have been guided by considerations similar to those which have prevailed with us in fixing the limits between the great divisions, though it appears best to speak of this second set of reasons in the course of our study of the twenty groups that have approved themselves to us. The following bare list of twenty groups, and their boundaries, may be convenient for purposes of reference:—

I.—WESTERN ALPS (from the Col de Tenda to the Simplon).

1. **Maritime Alps** (Col de Tenda to Col de l'Argentière).
2. **Cottian Alps** (Col de l'Argentière to the Mont Cenis, and E. of the Col du Galibier).
3. **Dauphiné Alps** (W. of the Col du Galibier as well as of the Guisane and upper Durance valleys).
4. **Graian Alps** (from the Mont Cenis to the Col de la Seigne).

5. **Chain of Mont Blanc, or the Western Pennine Alps** (from the Col de la Seigne to the Col Ferret).
6. **Central Pennine Alps** (from the Col Ferret to the St. Théodule Pass).
7. **Eastern Pennine Alps** (St. Théodule to the Simplon).

II.—CENTRAL ALPS (from the Simplon to the Reschen Scheideck Pass and the Stelvio).

8. **Bernese Alps** (from the Lake of Geneva to the Lake of Lucerne, N. of the Rhone valley and of the Furka Pass, and W. of the Reuss valley).
9. **Lepontine Alps** (from the Simplon to the Splügen Pass, S. of the Furka and Oberalp Passes).
10. **The Range of the Tödi** (from the Oberalp Pass to the Klausen Pass and the Lake of Walenstadt).
11. **The Alps of North-East Switzerland** (N. of the Klausen Pass and the Lake of Walenstadt).
12. **Bernina Alps** (from the Maloja to the Reschen Scheideck and the Stelvio, N. of the Valtelline and E. of the Val Bregaglia and the Engadine).
13. **Albula Group** (from the Splügen to the Flüela Pass and the Maloja).
14. **Silvretta and Rätikon Group** (from the Flüela to the Reschen Scheideck and the Arlberg Pass).

III.—EASTERN ALPS (from the Reschen Scheideck and the Stelvio to the Radstädter Tauern).

15. **The Alps of Bavaria, the Vorarlberg, and Salzburg** (N. of the Arlberg Pass, Innsbruck, the Pinzgau, and the Enns valley).
16. **Ortler, Oetzthal, and Stubai Ranges** (from the Reschen Scheideck and the Stelvio to the Brenner Pass, E. and S. of the Inn valley, and N. of the Tonale and Aprica Passes).
17. **Lombard Alps** (from the Lake of Como to near Tirano in the Adige valley, S. of the Valtelline and of the Tonale and Aprica Passes).

18. **Central Tyrolean Alps** (from the Brenner Pass to the Radstädter Tauern, N. of the Pusterthal and the upper Drave valley, and S. of the Pinzgau and the Enns valley).
19. **The Dolomites of South Tyrol** (from the Brenner route to the Monte Croce Pass, S. of the Pusterthal).
20. **South-Eastern Alps** (E. of the Monte Croce Pass, and S. of the upper Drave valley).

Now each of these twenty groups differs from the other, like stars both in glory and in attractiveness. Each has its own set of admirers, and perhaps of detractors also. Ideally each should be visited in order to test its merits or drawbacks, though not many Alpine travellers can attain this ideal. They will prefer to limit their energies to a few groups which they know well, perhaps here and there trying a new group by way of change. Sometimes this flirting has good results, sometimes it simply confirms one's affection for old friends. Yet it may happen that a man may long admire respectfully a certain range on the horizon, before coming to know it better and then really liking it. Another new friend may gain one's love at once, albeit it may lack the severe grandeur of its neighbours, while in another case the way to one's innermost heart may be won slowly, though steadily. Rarely will any two Alpine travellers be completely in agreement as to their favourite ranges, though they may agree as to a some one range. Tastes differ here, as in other departments of life. The present writer knows English climbers who scorn the Tyrol, and others who despise the Central Alps—in either case a nearer acquaintance *might* alter their ideas and prejudices. Luckily the Alps are wide enough to shelter men of very varying opinions as to these matters of personal preference. So let us now go on to point out the really characteristic features of our twenty groups, laying stress in each case on its merits, and passing lightly over its drawbacks.

I.—WESTERN ALPS

1. **Maritime Alps.**—Most people probably believe that the Maritime Alps are the hills that rise just back of Mentone, Nice, and Cannes. Herein they agree with the Romans of old, to whom the 'Alpis Maritima' was the track along the sea-coast from Genoa to Marseilles, that attains its highest point at Turbie, (1490 ft.), above Monte Carlo. Yet, if any of these hills be mounted, or even if the Lérins Islands, opposite Cannes, be visited, the horizon is seen to be bounded to the N. by a long line of rocky and snowy summits. These are the true Maritime Alps, and ever look down contemptuously on the tiny foot-hills which often usurp their name. For once the title of a French Department is clear and unmistakable, as that of the 'Alpes Maritimes' stretches from Nice and Cannes northwards nearly to Barcelonnette in the Ubaye valley, for since 1860, when the county of Nice was given up by the House of Savoy to France, the real Maritime Alps divide France and Italy, the older boundaries of the Var and of Turbie being thus quite superseded. Besides, if we consider the question carefully, we see that the foot-hills above the 'Littoral' or the 'Côte d'Azur' are in no sense 'Alps.' They are most certainly, stony and dried up as they are, not 'Alps' in the sense of rich and fertile Alpine pastures. Still less are they 'Alps' if we accept the definition given in our very first chapter, that 'Alps' are mountains which are lofty enough to bear considerable masses of perpetual snow. In this, the true sense, the Maritime Alps rise far back of the sea-coast. They start from the Col de Tenda (6145 ft.), that leads from Cuneo to Ventimiglia, and are most conveniently limited on the N. by the Col de l'Argentière (6545 ft.), which connects Cuneo with Barcelonnette. The Roja torrent descends direct from the Col de Tenda to the sea, but for historical reasons, enumerated in Chapter VI., is Italian throughout, save in its middle reach. At the S. foot of the Col de Tenda and at the head-waters of the Roja is the old Benedictine convent of San Dalmazzo di Tenda, now a charming Italian summer-resort. On the French

slope of the chain the Alpine hamlet of St. Martin Vésubie (formerly called St. Martin Lantosque) is the favourite resort in summer of the inhabitants of the 'Littoral.' It is situated near the head of the Vésubie valley, an affluent of the Var, while an easy mule pass leads from it to the Baths of Valdieri, on the Italian slope of the chain, and also much frequented in the heats of summer. These Baths (some way distant from the town of the same name) are at the head of the Gesso valley, and form the centre of the king of Italy's hunting preserves, so that many convenient mule paths have been constructed in the neighbourhood, and even over to the glens on the other slope, which in 1860 were not ceded, for reasons of the chase, to France. The Baths lie between two of the highest summits of the Maritime Alps, the Punta dell' Argentera (10,794 ft., with its prolongation, the Monte Stella, or Gelas di Lourousa, 10,696 ft.) and the Monte Matto (10,128 ft.). To the N.E. of St. Martin Vésubie rise two other lofty peaks, the Cima dei Gelas (10,286 ft.) and the Mont Clapier (9994 ft.), on the N. slope of which are the principal glaciers of the region, small, but crevassed, like their comrades elsewhere. All these are wholly Italian. The Mont Tinibras (9948 ft.) is farther to the N. and on the watershed and political frontier, but the two great belvederes on the French side, the Mont Pelat (10,017 ft.) and the Mont Monnier (9246 ft.), are wholly in France, though the Besimauda (7887 ft.), near the Col de Tenda, is wholly in Italy. Now *the* characteristic feature of the Maritime Alps is the amazing panorama that is gained from most of these peaks, for the eye lights on the level surface of the Mediterranean, in one direction, and on Monte Viso, Mont Blanc, Monte Rosa, and even the Matterhorn, in the other. From no other snow-covered peaks in the Alps is the Middle Sea visible, so that our range rejoices in an advantage which cannot possibly be disputed by any of its rivals. By a quaint freak of fortune the Maritimes were the first snow-covered peaks of the Alps that ever met the gaze of the present writer. He was spending the winter (1864-5) at Cannes (then but little known), and often made excursions to the Lérins Islands, from which

they are well seen, though at the time he thought more of local history than of Alpine summits. But in 1879 he became one of the chief explorers of these neglected peaks. Envious mists hid the sea when he stood on the Argentera and on the Monnier. But these disappointments were made up for a short time later, when, on two successive days, from the tops of the Gelas and the Clapier, the Mediterranean lay unrolled before him and his two Oberland guides, who had never seen it before. The Estérels, the Lérins Islands, the Bay of La Napoule, the promontory of Antibes were all identified, while on the far horizon floated a dim vision of Corsica. Nor was this all, for, swimming high above the misty Lombard plain, we saw many old friends in the Alps, from the Monte Viso right round to Monte Rosa, including Mont Blanc, the Matterhorn, the Weisshorn, etc., all clearly standing out against the azure sky. We greeted, too, the Argentera, the first ascent of which we had made a few days previously, though very unexpectedly, as we were under the erroneous impression that it had been visited previously. Then we were enveloped in mist, but now we saw the whole ridge, and rejoiced all the more in our conquest of the culminating point of the region. Four years later the present writer, with a friend, enjoyed an even more wonderful view of the sea from the Besimada, a low point (7887 ft.) to the N.E. of the Col de Tenda, and so not strictly within the Maritime Alps, as we have limited them in these pages. We started for the ascent from Limone after lunch on Midsummer's Eve, a blazing hot day, and were nearly cooked before we gained the gentian-starred upper pastures. Then a cool north breeze met us, and also a view that became finer and finer as we walked over them to the summit. There our eyes were more than sated by the spectacle of the whole Alpine chain from the Viso to the Monte della Disgrazia (near the Engadine), forming a great circle that served as a rampart to the Lombard plain. Peak after peak could easily be identified (though Mont Blanc itself was invisible), while the sight of the minor ridges and spurs breaking down into the plain was an object-lesson in physical geography. Turning round, we had a glimpse, through a break in the hills, of Genoa and

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its gulf, glittering in the sun's rays. It was a scene never to be forgotten. We descended to sleep that night at the old secularised Carthusian convent of Pesio, embowered amid its chestnuts. But, though the writer was beguiled into spending the whole of the following September in that lovely spot, he never ventured to disturb that ineffaceable impression by another visit to the Besimauda. He was content to sit in the cloisters (half a mile in extent, it is said), from a neighbouring chapel to marvel at the daily vision of Monte Rosa, the Matterhorn, and the Weisshorn, shining aloft, across the dim plain and the chestnuts nearer by, against a perfect sky. It is a thousand pities that political jealousies between France and Italy render it difficult for a traveller to explore the higher regions of the Maritime Alps, though perhaps these mutual suspicions have now calmed down a little.

2. **Cottian Alps.**—King Cottius would probably be more surprised than anybody else to learn that his name has been given to one of the most considerable groups of the Alps, though his kingdom, first independent, then annexed by Augustus, did sit astride of the central portion of what are now called the 'Cottian Alps.' It is perhaps even more surprising that this district of the Alps has never been named after Hannibal, for, with the exceptions of the Little St. Bernard and the Col de la Seigne, all the passes over which divers writers have taken him cross the ridge of the Cottian Alps.

In our division of the Alpine chain the Cottian Alps stretch from the Col de l'Argentière on the S. to the Mont Cenis Pass (6893 ft.), on the N. The Romans, however, gave the name of 'Alpis Cottia' to neither of these passes, but to the Mont Genève that lies midway between them, which, as we have tried to show in Chapter VIII., is the great Historical Pass of the Western Alps. The Argentière, though certainly crossed in Roman times, does not appear much in history till late in the fourteenth century, and first became widely known when Francis I. crossed it in 1515. On the other hand, the Mont Cenis came into prominence in Carolingian times, for it is not

known to have been crossed earlier than the middle of the eighth century of our era, though a little later it became the most fashionable pass in the Western Alps, and the usual route from France to Italy.

A glance at the map shows that the Cottian Alps comprise a very long section of the main ridge of the Alps. Hence its several districts differ from each other in many ways. Perhaps the best marked characteristic feature of the Cottians is that a very considerable stretch has no permanent ice or snow upon it. There are a few small glaciers at the head of the Ubaye valley which is thrust up, on the French side of the chain, into the chain nearly as far as Monte Viso, while that famous peak itself (12,609 ft.), the monarch of the Cottians (first conquered in 1861 by two Englishmen), has one tiny glacier of its own, which, however, can boast of being the true source of the Po. It is only in the most northerly portion of the range that glaciers of any size appear, and even then their extent is not really very great. It is hard to explain this phenomenon, since the Maritimes farther S. have glaciers, while the mighty Dauphiné Alps, strictly forming part of the Cottians, though more conveniently treated as a separate group, have very extensive snow-fields, so that it is not the southern position of the Cottians which explains this singularity. One result of this comparatively snowless character of the range has been to make it, if not 'the cockpit of Europe' (like Belgium), certainly the chief battlefield between France (the heir of the Dauphins) and the House of Savoy, a prolonged struggle that we sketched above in Chapter VII. Among the most interesting and remarkable campaigns that were waged in these regions was that carried out by Catinat in 1692. Almost every pass across the main ridge can easily be forced by a strong band of soldiers, so that well-nigh every pass has its own local military history.

Another feature of our range is that the higher summits are inclined to rise close to, but just off the main divide. Thus the Aiguille de Chambeyron (11,155 ft.), and Monte Viso, and Rochebrune (10,906 ft.); though farther north this curious shyness passes away, and we find the normal arrangement according

to which the higher summits rise on the actual watershed. Save Monte Viso and its spurs, few peaks of the Cottians attain a height of over 11,000 ft., the average altitude being greater than in the case of the Maritimes, but far inferior to that of the great mass of the Dauphiné Alps. Even so, the summits that rank next after the Viso are collected together, so to speak, either in the Chambeyron group, at the head of the Ubaye valley, or in the Scolette and Ambin groups, to the S.W. of the Mont Cenis. Probably it is the comparative isolation of Monte Viso that gave rise to exaggerated ideas as to its height (really but 12,609 ft.), and won for it the name of the 'visible peak,' for it seems to tower up almost alone when seen from the Piedmontese plain. Hence we are not astonished to find that it is the only great Alpine peak which is noticed by the writers of classical antiquity. The pines, as well as the wild boars, both sung by Virgil, have long since disappeared, but it is from the Viso that the infant Po still flows, as Chaucer told us centuries ago :

‘Of Saluces the contre,
And of Mount Vesulus in special,
Wher as the Poo out of a welle smal
Taketh his firste springyng and his sours.’

Of course the Po is the mightiest river of Piedmont, so that its source attracted interest at a very early date. But the Po is not the only river of importance that rises in our region. On the Italian side we have the Stura, the Chisone, and the Dora Riparia, all affluents of the Po, while on the French side are the Durance itself (with its feeders, the Guil and the Ubaye), and the Arc, two of the principal affluents of the Rhone, directly or through the Isère (which rises in the Graians).

If we turn from the actual range itself to its inhabitants, several notable features at once strike us. To this day, save on the E. slope of a portion of its most southerly district, French (in one dialect or the other) is the one tongue that is commonly spoken in all parts of the Cottians, whether now politically French or Italian. This circumstance is due to the fact that



MONTE VISO (COTTIAN ALPS) FROM THE NORTH EAST

the whole region was, till 1713, part of Dauphiné (see Chapter VII.), and therefore naturally attracted towards the French form of the Romance tongue. Of course, officially, Italian is used on the slope, politically Italian, but the people themselves employ a rough dialect that certainly resembles French rather than Piedmontese. A further result of the same long connection with Dauphiné is the settlement in the Alpine valleys, S.W. of Turin, of the 'Vaudois' or 'Waldensians.' It is most probable that this people formed a colony from Dauphiné which pressed over the Alps, leaving on the other slope certain members, who still exist, miserably, in the glens at the head of the Durance valley. It is possible that the forebears of the Vaudois did not come direct from Dauphiné, but were certain Dauphinois who had settled in Lombardy and were pressed backwards into the valleys now occupied by the Vaudois. Their special doctrines were taken from Peter Waldo, of Lyons, who put them forth about 1177, but, whatever may be thought of them, they disappeared in 1532 and 1571, when the Calvinism of Geneva was formally adopted in their place (Genevise ministers replacing the old 'barbes' in 1630), so that nowadays the Vaudois are more strictly Calvinist than are the Genevise themselves.

In the Cottians are also two of the earliest tunnels, pierced beneath mountain passes. One was excavated between 1478 and 1480 beneath the Col de la Traversette, at the N. foot of Monte Viso, in order that salt from Provence might be bartered against rice and oil from Italy. The other is that properly called the Fréjus Tunnel (as it passes beneath the pass of that name), and wrongly named the Mont Cenis Tunnel (as it is seventeen miles to the W. of that pass), the first of the great tunnels through the Alps, and opened for traffic in 1871.

3. **Dauphiné Alps.** — Really and truly the Dauphiné Alps form part of the great Cottian range, but as the highest portion (often called the Pelvoux group, from the peak that was formerly the best known, though not its highest summit) is curiously isolated, and is connected with the main mass of the Cottians only by the isthmus of the Col du Lautaret (6808 ft.,

a paradise for botanists), they are usually considered to form a district to themselves. For the sake of practical convenience other minor ranges to the N., on or near the frontier of Dauphiné and Savoy (so the Aiguilles d'Arves, 11,529 ft., and the Grandes Rousses, 11,395 ft.), are commonly joined with the Pelvoux group under the general name of the 'Dauphiné Alps'—more properly these should be called the 'Central Dauphiné Alps,' in order to distinguish them from the Dauphiné slope of the main range of the Cottians, to the E., and from the lower ranges of the Vercors, the Royannais, the Dévoluy, etc., to the W. and S.W. The exact limit between our group and the Cottians is thus best placed at the Col du Galibier (8721 ft.), over which runs the second highest carriage road in the Alps (that over the Stelvio, 9055 ft., is rather higher), that leads from St. Michel de Maurienne past the charmingly situated hamlet of Valloire to the summit plain of the Col du Lautaret itself.

Now the name 'Dauphiné' used, in former years, to call up the ideas of dirty inns and countless stones. Within the last twenty years the inns at all the spots likely to be most visited by travellers have been vastly improved, and are run either by Swiss landlords (for are not the Chamonix men who manage them 'Swiss' from the hotel point of view?) or by local men who have become aware of the requirements of modern travellers, and do their best to meet them. After all, the old inns were not so terrible as depicted, or rather they were like those then found everywhere in the French and Italian Alps, not being, by any means, exceptional. But, as it happened, the early explorers were naturally drawn to the Pelvoux group, and imagined that the inns there were worse than anywhere else. The present writer first visited the district in June, 1870, just before the outbreak of the great war, and therefore had a prolonged experience of these unreformed inns. But even in the seventies he found much worse inns in other parts of the Alpine chain than in the Dauphiné Alps, and, if pressed, could still indicate certain hostelries elsewhere that have changed but little since those days.

As to the stones, the accusation remains true, for their number has increased, if anything, through the gradual wearing away of the peaks, which discharge their rubbish into the valleys below them. Yet the valleys which so shock travellers in this part of the Alps are by no means the worst in the district, for whoever desires to see what a *real* stony region is should visit the Dévoluy to the S.W. of the main group, and he will come back a wiser and more cheerful man to the Vénéon valley, that forms the heart of the Dauphiné Alps. Besides the stones, the mountain slopes in the Alpine valleys of Dauphiné have a bad habit of ending in high cliffs, more or less steep, often overhanging, so that long ago it was laid down by a high authority (and the present writer has often proved the truth of the remark) that in this region a new pass was not completed till one had actually reached the stream in the valley.

In point of height the Dauphiné Alps rank very high. Their loftiest peak, the Pointe des Ecrins (conquered first by an English party in 1864), attains 13,462 ft., so that it is the highest summit that rises S. of the Mont Blanc chain. It is but 207 ft. lower than the Jungfrau and 6 ft. lower than the Mönch, though 76 ft. higher than the Gross Schreckhorn, to name three peaks better known to travellers. Further, save a few peaks in the Mont Blanc chain, the Pennines, and the Bernese Oberland, it is without a rival in the Alps; for Piz Bernina is rather lower (13,304 ft.), and the Ortler, the culminating point of the Eastern Alps, considerably lower (12,802 ft.). Then, too, the Ecrins is not, like Monte Viso, an isolated summit, for it is closely pursued by its neighbours the Meije (13,081 ft.), the Ailefroide (12,989 ft.), and the Mont Pelvoux (12,973 ft.), so that it was not till the early sixties that it was clearly distinguished from its neighbours and assigned the proud position that had always rightly belonged to it.

Another very marked feature of this district is the extraordinary fashion in which the very numerous lateral ridges are crowded together, so that, quite apart from the main horseshoe, they are crowned by a great multitude of peaks. This squeezing together as if by an hydraulic press has one great advantage

for climbers—these summits can mostly be reached in a day's excursion from one's headquarters in the valley, thus avoiding the necessity of sleeping out. Hence the desolate hamlet of La Bérarde (5702 ft.), situated in the centre of the great horse-shoe formed by the main mass, and just where streams unite from two of the principal Alpine glens, is one of the finest mountaineering headquarters in the Alps—at any rate as regards the number of peaks and passes to be visited thence. But, thanks in great measure to the former fiery energy of the present writer, virgin peaks around La Bérarde have ceased to exist, though in the seventies and even in the early eighties one had simply to decide every morning in what direction one should turn one's steps, for on every side unscaled peaks awaited their conqueror. The writer's Grenoble friends used to complain to him that the journey by diligence and on foot from Grenoble to La Bérarde (now rendered much easier) was so long that they really could not undertake it. His answer was that he did not consider the journey from Oxford to La Bérarde too long. Hence, when these friends really did arrive at La Bérarde, they found a forest of stone men on all the neighbouring summits, built in the course of many happy summers by the writer and his two faithful Oberland guides.

The views, too, offered by the higher summits of the region are most magnificent, and that not merely towards Monte Viso and the Pennines, which are always visible in fine weather. One of the most striking sights ever witnessed by the present writer was from a high bivouac on the S. slope of the Pelvoux, when, as daylight vanished, the eye ranged over many ridges, the crest being in each case picked out by the light, though the slope was enshrouded in darkness, these ridges fading away, little by little, towards the plains of Provence, and presenting a marvellous series of silhouettes.

To English readers the Dauphiné Alps are especially interesting because, while J. D. Forbes (the first great British mountain explorer) crossed several of their glacier passes as far back as 1841, almost all the other high summits and passes have been first climbed by English mountaineers, if the writer (a New



THE MEIJE (DAUPHINÉ ALPS) FROM THE SOUTH

Yorker by birth) may be reckoned among English climbers. The great exception was the Meije, which, in 1877, fell by a kind of accident to a young Frenchman, who was a chamois hunter rather than a peak hunter.

The Alpine historian, too, finds the Dauphiné region very attractive. In it rises that singular summit (some 36 miles S. of Grenoble) of the Mont Aiguille (6880 ft.), which was ascended as far back as 1492 by Antoine de Ville and his party, aided by ladders, etc., as we have described in Chapter ix. Five of the great glacier passes were known as early as 1673, while the district was carefully mapped by Bourcet between 1749 and 1754, so that it was perhaps the first Alpine region to be shown in detail (and astonishingly accurate detail, too) on a map. Yet it did not attract much notice for long, really not till after 1860, though the French map surveyors and a French botanist, Monsieur Victor Puiseux, visited the two loftiest points of the Pelvoux in 1830 and 1848 respectively, while two chamois hunters, during the chase, really attained in 1839 the Central Aiguille d'Arves, their rather fantastic narrative being fully confirmed by the discovery near the top in 1876 of a coin left by them, albeit the discoverer had then no knowledge of their expedition.

Let us recall, too, the memory of Déodat de Gratet, Marquis de Dolomieu (1750-1801), after whose famous geological journey of 1789 the Dolomites of South Tyrol were named, though he seems to have paid no attention to the peaks composed of similar rock that rise in the Vercors, the Royannais, and the Dévoluy, all to the S.W. of Grenoble, while his own estate of Dolomieu is some way N.W. of that city.

4. Graian Alps.—The Graian Alps resemble the Cottian Alps in several respects. In both groups we find a long backbone running roughly from S. to N., while on the W. a kind of rib or isthmus connects this central spine with a lofty half-insulated group, called the Dauphiné Alps in the case of the Cottians and the Western Graians in that of the Graians. But the Graians, unlike the Cottians, have a second curiously

similar isolated group, also connected with the main mass by a kind of isthmus, and called the Eastern Graians. In short, the Graians are more symmetrically built than the Cottians, comprising what are practically three separate ranges, as against the two of which the Cottians can boast.

The Central Graians, or the great backbone, like the Cottians, runs in nearly, but not quite, a straight line, the bend towards the N.E., noticeable in the N. portion of the Cottians, being, as it were, balanced by the bend towards the N.W. that strikes the eye at once on examining a map of the N. half of the Central Graians. The Central Graians stretch from the Mont Cenis, on the S., to the Little St. Bernard Pass (7179 ft.)—the 'Alpis Graia' of the Romans—on the N., but it is convenient to include in them the sort of no-man's-land that extends from the Little St. Bernard northwards to the Col de la Seigne (8242 ft.); this pass is the best S. limit of the chain of Mont Blanc, and some concession must be made to the 'Monarch of the Alps.' Now the bend towards the N.W. noted above takes place at the Col du Carro (10,302 ft.), which is quite close to the points at which the two isthmuses, connecting the main backbone with the Western and the Eastern Graians, join or diverge from the great central backbone, the Col du Mont Iseran (9085 ft.) linking it with the Western Graians, while the Col de la Croix de Nivolet (8665 ft.) performs the same function in the case of the Eastern Graians. These unequal halves of the Central Graians present in their turn two very striking parallelisms. In each case three Alpine glens descend from them on the Italian slope, those in the S. half being the three Valleys of Lanzo, that debouch into the Piedmontese plain a little to the N. of Turin, while the three in the N. half—the Val Savaranche, the Val de Rhêmes, and the Val Grisanche—are all tributaries of the Val d'Aosta; the Stura of Lanzo joins the Po, as does the Dora Baltea, which receives the streams flowing from the three Aostan glens. The other point of resemblance between the two halves of the Central Graians is that, as often elsewhere in the Alps, the Italian slope is far steeper and shorter than that on the other side, so that the villages on the French slope are higher than

those on the other, while the Orco, on the Italian side, curiously balances, to use that phrase once again, the Arc, on the other slope, though, of course, the Orco is an affluent of the Po, and the Arc of the Isère, and so ultimately of the Rhone.

There are yet other resemblances between the Cottians and the Central Graians. We noticed when describing the former that the main chain was crossed by an extraordinary number of easy passes. The same phenomenon is to be observed in the Central Graians, but with the difference that whereas in the Cottians these passes were generally snowless, in the Central Graians they are generally glacier passes, though of such an easy character that in the last sixty years of the seventeenth century no fewer than six are mentioned in maps or in documents. Again, just as the two slopes of the Cottians are closely related as to language, commerce, etc., because till 1713 they both formed part of the Dauphiné, that is (since 1349), of France, so the two slopes of the Central Graians are intimately connected with each other, the language being more or less an identical dialect, while till 1860 they had both been ruled for many centuries by the House of Savoy.

One more point of resemblance between the Cottians and the Central Graians must be noticed, ere we quit the quaking grounds of parallels. We have pointed out the tendency in the Cottians for the principal peaks to rise close to but just off the actual watershed. This tendency is much more marked in the Central Graians. The Rochemelon (11,605 ft.)—the first snowy peak in the Alps to be conquered, and that as far back as 1358—is not an instance of this, for, rising just beyond the Mont Cenis, and a great pilgrimage resort in summer, its summit, though on the watershed, is yet politically wholly in Italy, this exception having been specially arranged in 1860. But, more to the N., we have successively the Pointe de Charbonel (12,336 ft.), the loftiest point of the Central Graians, and the Albaron (12,015 ft.), both somewhat on the French side of the great backbone, while the Ciamarella (12,061 ft.) balances them on the Italian side of the great spine. But the Bessanese (11,917 ft.)—the Matterhorn of the district—and

the three summits of the Levanna (11,943 ft.) all rise on the actual main crest. This is the rule more to the N., though there are exceptions, such as the Bec de l'Invergnan (11,838 ft.) and the Tête du Rutor (11,438 ft.), both on the Italian side, while the Grande Aiguille Rousse (11,424 ft.) is on the French side of the main range. This singular aloofness on the part of great peaks from what one would naturally suppose to be their proper position is noticeable in many other parts of the Alps, though perhaps not quite to such a marked degree as in the Central Graians.

In quitting the Central Graians let us just remark that the famous Mont Iseran, once supposed to attain the height of 13,271 ft., is as regards position the actual E. peak (11,693 ft.) of the Levanna, to which the height of the Grand Paradis has been wrongly attributed. The peak now called the Signal du Mont Iseran is only 10,634 ft. in height. This strange delusion as to a summit that never existed save on paper was finally cleared up in 1859-1860 by the efforts of Messrs. W. Mathews and J. J. Cowell, who took the obvious course (neglected, however, by their predecessors) of actually exploring the site of this supposed giant of the Alpine chain.

Let us now look for a moment at the two great wings of the Central Graians, which, after all, contain the loftiest summits of the region. That to the W. is best called the *Western Graians*, and is wholly (since 1860) in France, forming the division between the two Savoyard provinces of the Maurienne (Arc valley) and the Tarentaise (upper Isère valley). It culminates in the fine peak of the Grande Casse (12,668 ft.), though even grander is the second in height, the glorious Mont Pourri (12,428 ft.)—so well seen from the Col du Bonhomme—while number three, the Dent Parrachée (12,179 ft.), is not far behind. There are a number of other peaks, easy of access and commanding most wonderful panoramas, for the position of the Western Graians between the Dauphiné, the Pennine, and the Eastern Graian Alps, naturally makes even its minor summits into belvederes of the first order. In the new edition (1898) of Mr. John Ball's *Western Alps*, the present writer, recollecting at

every step the marvellous views which he had enjoyed from point after point in the Western Graians, praised up peak after peak, without considering that this monotonous series of recommendations would amaze those who had not had his good fortune. That this was so, but that the praise was really well merited, is shown by the following friendly quiz by an English climber, when speaking of the view from the Dent Parrachée: 'The peak afforded a grand view, though, indeed, in every description of these peaks this may be taken for granted; in looking through "Ball" we were at first amused to read of apparently each peak that it commanded a marvellous panorama, or that the panorama was one of the most splendid in the Graians, or some similar phrase, but certainly the writer was justified.' Another advantage of the Western Graians is the way in which the district often recalls Switzerland, and affords a grateful relief to the eyes of a traveller who, as is so often the case, has just come from the *belles horreurs* of the Dauphiné Alps. The glaciers spread out widely without fear of taking up too much room—so those of the Vanoise, of Gébroulaz, of the Grande Motte, and of Gurra. This alone marks them off from the generally contorted and half-ashamed little riven glaciers that are so common in Dauphiné. As the slopes below the Western Graian glaciers are less arid and steep than in Dauphiné, they afford much finer pastures for cattle (the Provençal sheep of Dauphiné are totally absent), while the herdsmen's huts are better, and the herdsmen and cheesemakers themselves often Swiss, generally from the Canton of Fribourg. Of late years the Alpine inns in the Western Graians have greatly improved, and in this respect the district is more Swiss-like than perhaps any other in the Alps S. of Mont Blanc.

In the *Eastern Graians* (these are wholly within Italy) the accommodation has also been improved, though not nearly to so great a degree as farther west. The reason for this apparent backwardness is not far to seek. The Eastern Graians, even more than the Maritimes, are the hunting-grounds of the kings of Italy, the game is very strictly preserved by a small army of gamekeepers, and the excellent mule paths constructed to various

points can only be used by travellers when the king is not hunting in the neighbourhood; in short, it is not wished that travellers should visit this region in any great numbers. When one inquires why the kings of Italy are so intent on keeping this magnificent district more or less to themselves, we find that it is because it is the last refuge in the Alps of the Bouquetin or Steinbock, (*Capra ibex*), a strange animal, which resembles the chamois in many points, though zoologically quite distinct. There are said to be about three hundred bouquetins still in the Eastern Graians, which are often called the Mountains of Cogne, as the village of that name is the natural headquarters both of the king and of the comparatively few travellers who venture to intrude into these carefully guarded glens. Of course the chamois are preserved as well as the bouquetins, so that they multiply to an extraordinary extent, while they are not at all shy of the human beings who may check their steps in order to watch these graceful animals (the bouquetin is a much more clumsy-looking beast). On one occasion the writer counted in a single herd of chamois up to seventy, and then gave it up, as there were so many more. Possibly the culminating point of the district, the Grand Paradis (13,324 ft.), takes its name from being a sort of 'Gemsensfreiheit,' though this would not apply to the other great peaks, the Grivola (13,022 ft.), the Mont Herbetet (12,396 ft.), and the Tour du Grand St. Pierre (12,113 ft.). If one is an epicure, one may by a piece of good fortune be able to taste the flesh of a bouquetin (like insipid veal) as a curiosity, for the king often offers it to the hotel guests, reserving the horns for himself. If any of our readers be a votary of the chase, he will sympathise with the feelings of wild despair with which one of the writer's Oberland guides (a great Nimrod in his own land) gazed helplessly, without a rifle, at the bouquetins and chamois coming forth from behind every stone in the glen where we were. That night he dreamed that he pursued, on foot, one of these wonderful bouquetins, caught him, vaulted on his back, and rode in triumph to Grindelwald, seated on the back of this original kind of steed. The writer himself, being an epicure and a hunter

only as regards mountain summits, prefers to recall the glorious views to be had from the Cogne peaks towards the Pennines, and especially, in the case of those on the E. edge of the district, over the Piedmontese plain and in the direction of Turin. But one of the most singular experiences in the Alps that ever befell him was to spend several hours sliding about on the frozen surface of the quaint little lake that forms the very summit of the Roccia Viva (11,976 ft.). As the higher summits are some way off, the low snow barrier that guards this tarn effectually prevents any one from witnessing this 'winter sport' that may be practised in the heart of summer. But a question that does not seem to have yet been answered is how was this lakelet (that never melts) originally formed in its present crater-like hollow on the very tip of a lofty Alpine peak?

5. **Chain of Mont Blanc.**—In our progress northwards from Col de Tenda one huge range has loomed ever nearer and nearer on the horizon, like a vast rampart of black rock and glittering snow or ice, towering high up against the azure sky. It is really only when seen from the S. and at some distance away (best from the Western Graians or the more northerly summits of the Dauphiné Alps) that its true grandeur, majesty, and immensity can be properly appreciated. Precipitous, of gigantic height, streaming with crevassed glaciers, surpassing in height everything else that is visible, the chain of Mont Blanc, when seen from the S. on a glorious summer's day, is a sight that can never be forgotten, and which, once seen, leaves the keen desire to be thus privileged once again. On the map, indeed, this great mass, limited by the Col de la Seigne and the Col Ferret (8311 ft.), does not take up much room, and in point of mere length and breadth must yield to the Cottians and the Graians. But when we come to study it more in detail we find that in many respects it surpasses both these ranges. True it is that in the matter of continuous height it is inferior to the Eastern Pennines. Yet if we skim over it from the Mont Tondu (10,486 ft.), at its S.W. extremity, to the Pointe d'Orny (10,742 ft.), at its N.E. end, we discover that the main watershed

falls only in a few very rare cases below a level of 11,000 ft., an elevation superior to that of the loftiest summits in more than one of our twenty mountain groups. Hence the glacier passes across this great barrier are extremely high (the Col de la Brenva, 14,217 ft., is only surpassed by four passes in the Eastern Pennines), and in many cases are not at all easy, the most frequented being that which pierces the very heart of the chain, the Col du Géant (11,060 ft.), the early history of which was sketched in Chapter IX. above.

It is this continuous great average elevation that has caused this range to be usually named the 'chain' of Mont Blanc, rather than the 'range' of Mont Blanc, for the summits are bound together as scarcely anywhere else in the Alps. Strictly speaking, the district forms the 'Western Pennines,' a name hardly ever used, though it explains the terms 'Central' and 'Eastern Pennines,' commonly applied to those rising between it and the Simplon: the name 'Pennines' is, of course, taken from the title 'Summus Penninus' given by the Romans to the Great St. Bernard, *the* great pass of the entire region.

Yet, while the chain of Mont Blanc thus forms such a complete unity in itself, it has the singular fate of at present belonging to no fewer than three different nations, a very exceptional case, though, of course, many ranges owe allegiance to two sovereigns. As explained in detail in Chapter VII., this three-fold division is due to a series of historical accidents. Originally belonging in its entirety to the House of Savoy, that dynasty lost the N.E. bit of the chain in 1475-6 to the Vallaisans (hence to-day this is Swiss), while in 1860 it ceded the whole Savoyard slope with, it is held, the actual summit of Mont Blanc, to France. This partition is, however, less artificial than it seems to be at first sight, though it does not appear that the political geography was made intentionally to follow the physical geography. It is at any rate remarkable that the waters which flow from the range directly to the Rhone are politically Swiss, while those that unite to form the Dora Baltea (an affluent of the Po) are Italian; but by far the greatest amount swell the Arve, and, to a slight extent, the Isère, and are French, as the Arve,

near Geneva, joins the Rhone, so that that great river receives most of what is technically called the drainage of the range—a curious connection between water and politics. The three frontiers meet on the summit of the Mont Dolent (12,543 ft.), which thus enjoys the distinction of being in three countries.

We have hitherto taken it for granted that our readers are well aware that our chain contains the highest peak in the Alps, Mont Blanc (15,782 ft.) itself. It is indeed *the* 'White Mountain' above all others, though that name is not known to occur actually in a printed document earlier than 1742, despite the strong probability that some such general term was applied to it long before by the inhabitants of the valley of Chamonix at its very foot. Yet though the name in its French form is always recognised, it is a source of innocent amusement to speak of the summit by its translated name, and to see how many of the company will, without a little thought, grasp what mountain is really meant. Though Mont Blanc is higher than Monte Rosa (15,217 ft.), it is equally true that the whole range of Monte Rosa is loftier than the chain of Mont Blanc. If we exclude Mont Blanc and its immediate satellites from consideration, it will be found that the summits of the range next in order of elevation are the Grandes Jorasses (13,797 ft.) and the Aiguille Verte (13,541 ft.). But in the case of Monte Rosa there are quite a number of summits other than its ten or eleven peaks, and taking in only the Eastern Pennines, which exceed or approach 14,000 ft. One result of this fact is that Mont Blanc, flanked by its immediate attendants, soars far higher into the air than does Monte Rosa, and is thus far more imposing when seen from a distance. In speaking of Mont Blanc one thinks instinctively of the *peak* itself, whereas in the case of Monte Rosa one sees a great wall crowned by a number of summits differing but little in point of elevation. Both are superb sights in their several ways, and tastes will always differ as to which is really the most impressive. Another result is that the Alpine history of Mont Blanc is far shorter than that of Monte Rosa, its spurs being gained on the way to the culminating point, while the lower peaks of Monte Rosa were climbed as ends in

themselves. Of course, as we pointed out in Chapter ix., the history of the attempts on Mont Blanc form the commencement of the history of the true conquest of the Alps, for while the loftiest tip of Mont Blanc was attained in 1786, that of Monte Rosa awaited man's enterprise till 1855.

Next after the Monarch himself the most notable feature in the chain is the huge and deeply sunk glaciers that flow down from it in every direction. Though surpassed as to length by at least three glaciers in the Bernese Oberland, and only able to tie (nine and a quarter miles in length) with the Gorner glacier, at Zermatt, the great stream of ice that is named in different portions of its course the Géant, the Tacul, and the Bois glaciers, and the 'Mer de Glace,' is one of the best-known glaciers in the Alps. Was it not the glacier which was most visited by the early visitors to Chamonix? Was it not over this glacier that the long-lost route led to Courmayeur by the Col du Géant? Was it not on this glacier that Forbes in 1842 and Tyndall in 1857 carried out their experiments as to the causes of glacier motion and glacial phenomena in general, observations that cast into the shade those made rather earlier by Hugi, Agassiz, and Desor on the Unteraar glacier in the Bernese Oberland? The next longest glacier in the chain is the beautiful one of Argentièrre (six and a half miles). But why try to cramp our admiration to mere size? Few glaciers can attempt to rival, simply from the picturesque point of view, the great French streams of Tour and Bossons and Taconnaz and Bionnassay and Miage and Trélatête, or the Italian glaciers of Miage, of Brouillard, of Fresnay, of Brenva (the most magnificent of all), and of Triolet. Nor are the Swiss glaciers of Saleinaz and Orny and Trient very far behind.

More characteristic of our chain are the strangely splintered pinnacles of weathered protogine granite that bear the name of 'Aiguilles.' There are many summits in the range that bear this name, so rarely found elsewhere. But '*the* Chamonix Aiguilles' are seven rock needles which rise in the immediate neighbourhood of Chamonix, five clustered together, one (the Dru) a little way off, and another (the Géant) farther away, but

very visible from the Montenvers Hôtel. It is not their height which distinguishes them from other summits of the chain, for with one exception they do not exceed 13,000 ft., while three others hardly surpass 11,000 ft. But height is little in comparison with grim aspect and apparent inaccessibility. One (the Midi, 12,609 ft.), the easiest of all, was climbed as far back as 1856. But all the rest were not vanquished till very much later, and in each case by valiant Englishmen, the triumphs in several cases being amongst the finest exploits ever achieved in the Alps. Here is the list in order of date—the Plan (12,051 ft.), in 1871; the Blaitière (11,549 ft.), in 1874; the Grand Dru (12,320 ft.), in 1878; finally the Grands Charmoz (11,293 ft.), the Grépon (11,447 ft.), and the Géant (13,170 ft.), in three successive years, 1880, 1881, and 1882. The present writer has not visited Chamonix since 1876, when the four last-named Aiguilles were thought to be quite inaccessible, impossible, unclimbable, etc., the ascent of the Blaitière being then held to mark the high-water-mark of modern climbing. He can thus appreciate better than many the old feeling of respect and awe that surrounded these gaunt pinnacles, though nowadays that feeling seems to have vanished. As the lines are being written it is announced that an extremely active English climber, on one summer's day in 1906, climbed successively the Charmoz, the Grépon, and both summits of the Blaitière, the time taken from the Montenvers Hôtel and back being not quite sixteen and a half hours—halts of three hours being *included*. How are the mighty fallen!

6. **Central Pennine Alps.**—At last! some of our readers may cry, at last! we come to a region which we really know and love. We do not like Chamonix and the Mont Blanc chain very much. But now we come to the delightful summer haunts that abound in that pearl of the Alps, the Swiss Canton of the Vallais. Other readers of these pages, not unwilling to show that their knowledge is a little more extensive, may adopt for this district the name of 'The Alpine Midlands,' as it lies between those two great 'centres,' Chamonix and Zermatt. But the use of this

name rather implies that the speaker believes in his heart of hearts that there are really no other mountains (save perhaps those of the Bernese Oberland) which are worth considering. Now one object of this book is to show that, while the Pennines (Western, Central, or Eastern) undoubtedly rank first in the Alps, in point of elevation and extent of perpetual snow, there are many other mountains well worth visiting, while, be it said under one's breath, they are in some cases more beautiful and charming than the much-vaunted Pennines.

However this may be, let us now study our new district. Its W. limit is the Col Ferret, but only a few summits, the chief being the Grand Golliaz (10,630 ft.), are covered by everlasting snow, till we reach the famous pass of the Great St. Bernard (8111 ft.). That pass, therefore, is the real W. limit of our region, which extends thence to the St. Théodule Pass (10,899 ft.), that divides it from the Eastern Pennines. There is no need to dwell on the history of the Great St. Bernard, so full of interest in every way, beyond remarking that it is one of the oldest passes known to have been utilised, the Roman name of 'Summus Penninus,' or 'Mons Jovis,' having gradually been superseded by that of the second founder of the Hospice, St. Bernard of Menthon, who died about 1081. The good deeds of the Austin Canons (who have served it perhaps from 1154, certainly from 1215) are renowned throughout the world, while their faithful dogs are scarcely less famous. Contrary to what is often believed, ecclesiastics do not always lag far behind the times. Witness the energy of the present occupants of the Hospice, who in 1906 sent some of their members down to Martigny to be instructed in the art of driving a motor-car, in which they triumphantly returned to their mountain home, while, so it is said—but the proof of the pudding will be in the eating—this motor-car, furnished with runners, is to be sent out in winter from the Hospice to search for travellers overtaken by storms. Can anything more 'modern' be imagined?

A glance at a map of our district reveals at once two singular features which mark it off from other regions. One is that from quite near the Hospice eastwards the main ridge is not traversed

by a single non-glacier pass. It is true that the Col de Fenêtre (9141 ft.) is a very mild and anodyne kind of glacier pass, while the Col de Collon (10,270 ft.) and the St. Théodule itself (10,899 ft.), despite its height, are not difficult from a modern standpoint. These three passes have been known and traversed by local folk for many centuries, certainly from the first half of the sixteenth century, beyond which our records are very scanty. Hence communications between the valley of Aosta and the Vallais were by no means arduous, though, of course, the Great St. Bernard, with its Hospice and Canons, offered special conveniences and advantages. The other notable feature of the region is the odd arrangement of the valleys that are included in it. On the S. slope there is but one considerable glen, that of Valpelline, apart from the Val Tournanche, which belongs to the Eastern Pennines as much as to the Central Pennines. Now the Valpelline, though it can boast of fine scenery, has never been a favourite with English travellers, so that its exploration has been mainly carried out by Italians, despite the fact that an Irishman, Mr. Adams-Reilly, in 1865-6, constructed an excellent map of the glen, based on his personal observations. The glen of St. Rhémy, leading up to the Great St. Bernard, is a tributary of the Valpelline, while that of St. Barthélemy, though not properly a tributary, is yet thrust up into the hills that rise between the Valpelline and the Val Tournanche. Now if we look at the N. slope of our districts we shall find things very different in this matter of valleys. On that side, between the Val d'Entremont and the Zermatt valley (reckoning neither in our list) there are three or four glens of very considerable length and size—the Val de Bagnes, the Val d'Hérens (with its side glens of Hérémece, Arolla, and Ferpèche), the Val d'Anniviers (with its tributary, the Val de Moiry), and the Turtmann valley. The Nendaz valley stands to the Val de Bagnes and the Val d'Hérens in somewhat the same relation as the Val St. Barthélemy does to the Valpelline and the Val Tournanche—it is thrust up into the mountains between them, but does not quite attain the great divide, being, as it were, held back by its two neighbours. The same remark may be made as to the Turt-

mann valley, with a change in the names of its opponents, but this glen is the least important of all, for it contains no permanently inhabited village, and is occupied only by cows and herdsmen during the summer months. On the other hand, the valleys of Bagnes, of Hérens, and of Anniviers have most interesting local histories, which those persons might well study in winter who frequent them in summer. One of the quaintest facts in this local history is the fashion in which different bits of the same valley were held by different lords. One would naturally imagine that each valley would in its entirety belong to one feudal lord, even though other personages might own lands therein. But it would almost be truer, in these as in other cases, to assert the contrary. The oddest of all is perhaps the Val de Bagnes. Originally this belonged to the House of Savoy, which also held the Val d'Aosta and the Lower Vallais. But in 1150 the Count gave the lower portion of the valley to the Austin Canons of St. Maurice, in the Vallais, who held it till 1798. Again, in 1252, the upper half of the valley was made over by Savoy to the lords of Quart, in the Val d'Aosta. Thus the valley 'looked towards' two very different lords. As the pastures at the head of the glen, those of Chermontane, are remarkably fine, they were leased out by the lords of Quart (we hear of such a lease as early as 1398), but the men of the lower half, filled with jealousy at this occupation of rich meadows that naturally ought to have belonged to them, often attacked the Aostan herdsmen. The division between the two halves was drawn at the bridge, below the Mauvoisin Hôtel, for long known (even as late as 1694) as the 'Pont de Quart,' though now commonly called the 'Pont de Mauvoisin.' Some writers hold, however, that the true 'Pont de Quart' was rather higher up the valley, and led from the Chermontane huts to those of Vingt-huit.

Yet these valleys on the N. slope of the watershed, so well known to summer travellers to-day, were first explored in the thirties and forties of the nineteenth century, when it was thought quite a feat to visit Evolena, or Arolla (no inn then), or Zinal: it was almost as necessary to write a book or article



THE GRAND COMBIN (CENTRAL PENNINES) FROM THE GRAND TAVÉ

as to such a daring expedition as it was in the case of the ascent of Mont Blanc. Naturally, too, the high peaks of the region received no attention, although the principal passes close beneath were well known and even frequented. In the western portion of the region, the Grand Combin (14,164 ft.) is the culminating point, and shares with the Finsteraarhorn (14,026 ft.), in the Bernese Oberland, the honour of being the only Alpine summit over 14,000 ft. that rises outside the Mont Blanc chain and the immediate neighbourhood of Zermatt: in the eastern portion of the district, it is, of course, surpassed by the Weisshorn (14,804 ft.), the Matterhorn (14,782 ft.), and the Dent Blanche (14,318 ft.). These three giants were conquered, in each case by Englishmen, in 1861, 1865, and 1862 respectively. But the Grand Combin had only been vanquished in 1859, and then by a celebrated French geologist, M. Ch. Sainte-Claire-Deville, though its neighbour, the Mont Vêlan (12,353 ft.), had been overcome as far back as 1779. The actual name 'Kumben' occurs as early as 1550 in Sebastian Münster's *Cosmographia Universalis*, where it seems to indicate the Col de Fenêtre or the Col Ferret. But, as far as the present writer is aware, the form 'Combin' does not appear till 1804, in Ebel's *Guide-book*. On many maps of the seventeenth and eighteenth centuries we find indicated in large letters, and placed between the Great St. Bernard and the Monte Rosa group, a mysterious 'Mont Coupeline,' which is certainly meant for our peak. Most of these maps place it at the head of the Valpelline, so that the name is probably an instance of 'conflation,' and formed by a fusion of 'Valpelline,' 'Col' (indicating either the Col de Collon or the Col de Fenêtre), and 'Combin.' Another form sometimes found, 'Mont Colomb,' is probably intended to indicate the Mont Collon (11,956 ft.), that makes such a show from Arolla, and those pastures were utilised already in 1442, while at the end of the thirteenth century we hear of Arolla as the haunt of bears and of chamois, which probably deterred any cattle from coming up thither. Is there any need to speak of modern Arolla, and Evolena, and Zinal? The writer can recollect his first visit to Zinal in 1869, when there was but a

single inn, the Hôtel Durand, which had four tiny bedrooms only, all opening into a small central dining-room. In 1870 things were not much better, even at Evolena, while he will never forget the horrors of a week snow-bound at Arolla in 1887. In 1870 Gruben, in the Turtmann valley, was delightfully simple. In all these cases comparatively few years had elapsed since tourists had come to any of these spots in sufficient numbers to make it desirable to cater for them specially. But in 1887 Zinal was already spoilt, in the eyes of the present writer, who obtained the last bed at his old inn, found that inn pervaded by a school of young girls, and the scene of noisy rejoicings. Let us, however, turn our thoughts from such desecration of Alpine glens, and utter as our last words a word of warning to our readers not to place any credence in the absurd and wild theory, a veritable mare's nest, that the Zinal valley was once peopled by Huns. Authentic history shows that, like that of Hérens, it was colonised from the Vallais, the so-called Hunnish characteristics being simply due to backwardness on the part of the inhabitants to enter upon the march towards modern civilisation.

7. Eastern Pennine Alps.—The most easterly group in the whole of the Western Alps is also that which boasts of the greatest continuous elevation in the entire chain. Mont Blanc itself, of course, surpasses any single peak in the Eastern Pennines, but, as we pointed out above in Section 5, if we put aside that mighty summit, with its immediate satellites, the height of the Mont Blanc chain is far inferior to that of the mass of Monte Rosa. Take any large scale map of our region, which extends from the St. Théodule to the Simplon Pass (6592 ft.), and study it with some attention. Very soon after leaving the St. Théodule on our journey eastwards we come to the Zermatt Breithorn, which attains an elevation of 13,685 ft., and is thus only 112 ft. lower than the Grandes Jorasses, the loftiest summit in the chain of Mont Blanc next after the Monarch and his attendants. From the Breithorn onwards the height all but steadily increases through the Twins (Castor

is 13,879 ft., though Pollux is but 13,433 ft.) and the Lyskamm (14,889 ft.) to the five highest peaks of Monte Rosa, the loftiest of which, the Dufourspitze, is 15,217 ft., while the lowest is still 14,965 ft. in altitude, the other five peaks of Monte Rosa being merely snow-humps on or near the watershed. N. of Monte Rosa there is a great fall to the wide opening over which lead the various passes called 'Weissthor' or 'Porte Blanche,' a most appropriate name for this great gate open towards Italy. Near the Strahlhorn the main ridge bears away E. to rise soon again in the range that bounds the valley of Saas on the E., and which is comparatively quite low, for its culminating points are the Weissmies, the Laquinhorn, and the Rossbodenhorn, which are not able to rise respectively above 13,226 ft., 13,140 ft., and 13,128 ft., a great drop indeed from the height to which we have become accustomed since leaving the St. Théodule. But from the Strahlhorn northwards the range, though technically but a lofty spur, rising between the valleys of Zermatt and of Saas, is the true continuation of the mighty group of Monte Rosa. From the Strahlhorn (13,751 ft.) we rise to the Rimpfischhorn (13,790 ft.), descend slightly to the Allalinhorn (13,236 ft.), rise again to the Alphubel (13,803 ft.), and so ever upwards to the Täschhorn (14,758 ft.) and the Dom (14,942 ft.), the loftiest summits of the Mischabel group. Then comes the great drop, though a gradual one, through the Nadelhorn (14,220 ft.) and the Ulrichshorn (12,891 ft.) to the Balfrin (12,474 ft.), which makes such a show from Visp, where the traveller embarks in the railway for Zermatt. The same phenomenon of exceeding great continuous height is naturally very well marked in the case of the passes that cross this huge range. From the Zermatt Breithorn right round to the Balfrin, not a single pass falls below 11,400 ft. Most considerably exceed the height, prodigious for a 'pass,' of 12,000 ft., while of the seven loftiest passes (all over 14,000 ft.) in the Alps no fewer than six (see our list in Appendix 1.) are situated in our region—the highest elsewhere, the Col de la Brenva (14,217 ft.), in the chain of Mont Blanc, occupying but the fifth rank. The highest of all the seven is, of course, the Silbersattel (14,732 ft., not many

peaks in the Alps are higher), between the two loftiest summits of Monte Rosa, while the lowest is the Lysjoch, which merely attains 14,033 ft.: all the seven are situated in the immediate neighbourhood of Monte Rosa, save the Brenva (see above) and the Domjoch (14,062 ft.), which lies between the two culminating summits of the Mischabel range.

Here we pause to clear up two points which are often misunderstood. We sometimes read of enthusiastic dithyrambs on the subject of the marvellous felicity of the name 'Monte Rosa,' whether explained with reference to the roseate tints of dawn which first illumine its crest (but then what about the still higher Mont Blanc or the 'White Mountain'?), or to the symmetrical arrangement of its nine or ten summits, like the petals of a rose (but a glance at a map will show that there is a great break in this lovely circle). As a matter of fact, the name simply comes from an old word of the Aostan dialect, variously written 'reuse,' 'roisa,' 'roüsa,' or 'ruise' (the actual form 'rosa' is used in 1574 by Simler, and in 1596 in a document relating to the glacier Rutor lake), which simply means a 'glacier.' Thus, just as the St. Théodule Pass (see Chapter III.) is called '*The Glacier*,' so the culminating point of 'The Glacier' has to this day retained the name of 'Monte Rosa,' otherwise '*The Glacier Mountain*': it will be recollected that the learned name for glaciers was formerly '*montes glaciales*.' It is a pity, in a way, to destroy a picturesque legend, but it is rare to be able to kill a myth as effectually as in this case.

The doubtful point is that the Dom (14,942 ft.) is 'the highest mountain in Switzerland.' Now if by 'mountain' we mean an independent peak, rising more or less alone, this statement is true. But if, as is more usually the case, we understand by the term 'mountain' some one particular 'summit,' then this statement is not even a half-truth, for the Dufourspitze of Monte Rosa (15,217 ft.) rises wholly within Switzerland, being situated on a spur that projects west from the main watershed and political frontier. Hence it was but fitting that the loftiest Swiss peak should be christened (in

1863) after General Dufour (1787-1875), under whose superintendence the remarkable map survey of Switzerland had been carried out.

Now when tracing out in Chapter IX. the history of the early exploration of Monte Rosa, we laid stress on the fact that the first conquest of its highest summit was one of the first exploits of the small band of Englishmen, who had seriously taken up, though rather late in the day, the task of climbing all the highest peaks of the Alps. English travellers began to come to Zermatt in the early fifties, but it was not till the Riffelberg inn (now called the Riffelhaus inn) was opened in 1854 that expeditions in the range became easy, and therefore that the first serious attack on Monte Rosa was made in 1854. This first success led the way to others, and so it came to pass that, with the exception of certain minor summits of Monte Rosa (visited from 1801 to 1842) and of the peaks on either side of the St. Théodule (the Theodulhorn and Little Matterhorn climbed by Saussure in 1792, and the Breithorn by Monsieur Maynard in 1813), all but three or four of the higher peaks around Zermatt, whether in the Central or in the Eastern Pennines, were first ascended by Englishmen, and that between the dates of 1854 and 1865. Here is the list, which proves how strongly Englishmen were early attracted to this valley, and explains why so many have since loved it so heartily—1854, Strahlhorn; 1855, Monte Rosa; 1856, Allalinhorn; 1858, Dom; 1859, Rimpfischhorn; 1860, Alphubel; 1861, Nord End of Monte Rosa, Weisshorn, Lyskamm, and Castor; 1862, Täschhorn and Dent Blanche; 1863, Dent d'Hérens and Balfrin; 1864, Zinal Rothhorn; and 1865, Ober Gabelhorn and—the Matterhorn. If, however, we look at the higher points of the range on the other side of the Saas valley, we find that English successes are limited to the Laquinhorn in 1856 and the Portjengrat in 1871. Still, English climbers need not complain, and Zermatt certainly became the second home of the Alpine Club, if Chamonix (or rather St. Gervais) was really its cradle.

Another very interesting point as to the Eastern Pennines

concerns the race to which its early inhabitants belonged. It is well known that the Zermatt valley was originally inhabited by a Romance-speaking race (hence the names 'Praborgne' for Zermatt, and 'Chouson' for St. Niklaus), which was later (probably in the fifteenth century) overlaid and absorbed by a Teutonic race, swarming down from the German-speaking Upper Vallais—the name 'Pratoborno' is found as late as 1450, while that of 'Matt' occurs on the first Swiss map (that of Konrad Türost), dated 1495-7. The full form 'Zermatt' seems to occur first on Antoine Lambien's map of the Vallais (1682), and occurs again in maps of 1712, 1756, 1760, and 1762, though it did not supersede other forms till after Saussure's visit of 1789. Again, at the heads of several of the valleys situated on the S. and E. of the range stretching from the St. Théodule to the Monte Moro, there still exist colonies of German-speaking folk, who, at some unknown date (perhaps as early as the twelfth and thirteenth centuries), came over (it would be interesting to know if they crossed the St. Théodule or the Monte Moro) from their home in the Vallais, for the dialect still spoken at Gressoney (Val de Lys), Alagna (Val Sesia), and Macugnaga (Val Anzasca) is certainly of Vallaisan origin. As a matter of fact, it is certain that about 1250 Macugnaga was really colonised from the Saas valley while Italian-speaking folk emigrated between 1261 and 1291 from the lower Val Anzasca across the Monte Moro to the Saas valley, though later, as in the case of the Zermatt valley, they were absorbed by a Teutonic population coming from the Upper Vallais. Hence, while the Anza stream is still called the 'Visp,' the predecessors of the present Teutonic names of Balen were 'Aballa'; of Almagell, 'Armenzello'; of Saas itself, 'Soxa' or 'Sausa.' At one time it was currently believed that some of these names were of Arabic origin, and due to the presence of a colony of Saracens, as shown by the 'Al' in 'Allalin' and 'Almagell.' The theory was tempting at first sight, and greatly attracted the present writer. But when he came to look into the authentic mediæval documents relating to the valley, he renounced it at once, as Italian influence was

plainly responsible for these names, though in every case it is not now easy to detect it in the Teutonised form commonly used.

Thus the Eastern Pennines rank among the most interesting districts of the Alps, whether from the linguistic and racial point of view, or from that of Alpine history, while it is certain that no other Alpine region maintains so great a continuous elevation. It appears hence that great height does not necessarily mean a desolate region, but is compatible with many ethnological and linguistic peculiarities that are a marked feature in the region even at the present day.

II.—CENTRAL ALPS

8. **Bernese Alps.**—What do we mean precisely by the term 'Bernese Oberland' or the 'Bernese Alps'? Most of our readers will probably reply: 'Oh! the valleys of Lauterbrunnen, of Grindelwald, and of Hasle'; in other words, the region in the neighbourhood of Interlaken, and of the Lakes of Thun and of Brienz. No doubt this district is strictly *the* 'Oberland' or 'Highlands' of the canton of Berne. But historically we must also include in the 'Bernese Oberland' the valleys of the Kander and of the Simme, and even the upper reach of the valley of the Sarine or Saane, for, as shown in Chapter VII., all these were gradually added to the wide domains of the town of Berne. Topographically we must cast our net even more widely, for the Dent de Morcles and the Grand Muveran and the Diablerets, all looking towards the Lake of Geneva, are, on the S.W., the natural continuation of the 'Bernese Oberland,' as, on the N.E., is the Uri Rothstock, above the Lake of Lucerne, not to speak of the Titlis and the Dammastock districts. Thus, from a topographical point of view, we include under the name of the 'Bernese Oberland' the entire mountain country situated N. of the upper valley of the Rhone and W. of that of the Reuss, and extending from the shores of the Lake of Geneva to those of the Lake of Lucerne. It is linked by the Furka Pass (7992 ft.) to the Lepontines,

which continue the Pennines and the main watershed of the Alps towards the E. Thus the Bernese Oberland, in our sense of the term, is a huge outlier of the principal chain, just as are the Dauphiné Alps, neither being on the great divide, a circumstance that has greatly affected the course of their history in either case (see Chapter VII.).

Hence the whole region is Swiss. But a moment's thought will show parts of it belong to Cantons other than that of Berne. The entire S. slope is, and always has been, Vallaisan. Portions of the W. wing (that is, W. of the Gemmi) are in the Cantons of Vaud and of Fribourg, though historically much that is now in Vaud did actually belong (till 1798) to Berne by virtue of its conquest (1475) of the district of Aigle from Savoy, and of its division, with Fribourg, of the domains of the last Count of the Gruyère (1555). Similarly in the case of the E. wing (E. of the Grimsel Pass), we find that the Cantons of Uri, and Unterwalden, and Lucerne all hold bits of the 'Bernese Oberland,' and these bits have never at any time belonged politically to Berne. Hence, strictly speaking, our general name is inaccurate as regards both wings, and must be understood in a topographical sense only.

Further, on examining a large-scale map, we find that many lofty summits which rise within the limits of the 'narrow Bernese Oberland' (from the Gemmi to the Grimsel) are wholly or partially Vallaisan. Thus such typical Oberland summits as the Aletschhorn (the second in elevation), the Gross Nesthorn, and the Bietschhorn all rise on the Vallais side of the watershed, while many other great Oberland peaks are on that watershed itself, and so are shared between the Vallais and Berne; such are the Altels, the Balmhorn, the Lauterbrunnen Breithorn, the Jungfrau, the Mönch, the two Fiescherhörner, even the Finsteraarhorn itself (the monarch of the group), and the Oberaarhorn. What then is left that is strictly Bernese in the 'Bernese Oberland'? A good deal, for the Oberland is a very extensive region. Completely Bernese are all the summits of the Blümlisalp and Gspaltenhorn group, as well as the Silberhorn and the Eiger, together with the

whole of the mighty Schreckhorn and Wetterhorn ranges, so that an anxious inquirer may be soothed by finding that some well-known 'Bernese Oberland' peaks are really and truly entitled to the epithet 'Bernese.' The key to this apparent confusion is very simple, and is supplied by physical geography. All the wholly Vallaisan peaks stand on the S. side of the great watershed between the upper Rhone and the upper Aar valleys, while all the wholly Bernese summits rise to the N. of that watershed, whether forming detached groups, or (like the Silberhorn and the Eiger) being mere spurs or buttresses.

Therefore, to sum up, the term 'Bernese Oberland' is wrong historically and politically, but is in agreement with physical geography, which makes a unity of the entire range from the Lake of Geneva to that of Lucerne. The epithet 'Bernese' is due to the predominance of Berne in the Swiss Confederation, for its most dangerous rival in this matter, the Vallais, did not enter the Confederation till 1815, while Berne (though the town did not, as we have seen in Chapter VII., gain its wide dominions till much later) became a member as early as 1353.

Keeping still to questions of physical geography, let us note that the Bernese Alps belong for the most part to the basin of the Rhine, for the Aar, the typical river of the region and of Switzerland in general, 'collects,' before joining the Rhine, both the Sarine and the Reuss, so that its volume at the junction is said to exceed considerably that of the Rhine at this point in its course. On the other hand, all the streams flowing down the S. slope of our range go to swell the Rhone, and so ultimately reach the Mediterranean.

Again, as is usually the case in the Alps, the valleys (though not the glaciers) on the S. slope of our range are short and steep, indeed mere mountain glens, save the beautiful but little-visited Lötschenthal. On the N. slope we have much longer and more fertile valleys. The mere names of Plan des Iles and Les Plans de Frenières, at one end, and of Engelberg (oddly situated politically since 1816 in the Obwalden half of Unterwalden, though physically within the Nidwalden half), are sufficient proof of this statement. But if

any scoffer mocks, he has only to think of the upper bit of the Sarine valley (with Saanen, Gsteig, and Lauenen), or of the Simme valley (with Lenk and Zweisimmen), one long series of magnificent pastures, or of the main Aar valley, with its tributaries of the Kander (Kandersteg and Adelboden) and of the Lütschine (Grindelwald and Lauterbrunnen), besides the main stream itself (with Meiringen and Gadmen).

Rivers and valleys naturally lead one's thoughts towards glaciers. Of these the Bernese Alps have enough and to spare, for does not Canton Berne rank third in Switzerland with $111\frac{1}{4}$ square miles of glaciers? It is also helped considerably, as to our region, by Canton Vallais, which (including of course the main chain S. of the Rhone valley) claims no less than 375 square miles of ice (at present we need not consider the $138\frac{1}{2}$ square miles belonging to the Grisons), and the total snow area in Switzerland is about $709\frac{3}{4}$ square miles. Then, too, our region can boast of the three longest glaciers in the Alps, the Great Aletsch ($16\frac{1}{2}$ miles), the Unteraar and the Fiescher (each 10 miles), these being all wholly within the Vallais, the longest 'Bernese' glaciers being the Gauli ($8\frac{1}{2}$ miles), and the Lower Grindelwald ($6\frac{1}{4}$ miles).

Glaciers, valleys, and rivers mean lakes, and what more typical Alpine lakes, each in its way, can one find than those of Thun, of Oeschinen, of Engstlen, of Lauenen, of Märjelen, of the Grimsel?

And if we turn to the 'human interest' of this portion of the Alps, no one can complain of want of variety and of movement. The secular struggle between the town of Berne, ever bent on extending its rule, with the Vallais, distracted by internal struggles, was largely waged on some of the higher passes of our region, such as the Grimsel, the Lötschen, and the Sanetsch. On a smaller scale, the Austin Canons of Interlaken slowly but surely drew the Lütschine valleys into their grasp, destined later to find that they had smoothed the way for the ambitious town of Berne. The Benedictines of Engelberg were more busied with spiritual work, but this had to be coupled with the necessity of trying, though fruitlessly,

to stem the advance of the men of Uri who seized the best pastures in their valley. In our region, too, though at its very extremity, are Pilatus, with its famed lake (now dried up), and its legend of the yearly reappearance of Pontius Pilate, who had drowned himself in it. In another order of matters, the Rütli, the meadow by the lake, on which the founders of Swiss independence met, is in the 'Bernese Oberland,' though, happily, the site (Tell's Chapel) of the fond invention of Tell's leap is on the other side of the lake.

If we think of the exploration of the Alps rather than of political matters, we find at the two ends of our region two of the rare peaks that are known certainly to have been climbed in the eighteenth century—the Titlis in 1744, and the Dent de Morcles in 1788. A little later we have the remarkable journeys through the glaciers of the range carried out in 1811-12 by the Meyer family, of Aarau, resulting in the opening up of many glacier passes, as well as the conquest of two out of the three highest summits, the Jungfrau (1811) and the Finsteraarhorn (1812). Still later, we have the scientific observations on the Unteraar glacier made by Hugi, by Desor, and by Agassiz, a by-product of which was the conquest of several high peaks, such as the Ewigschneehorn in 1841, the Gross Lauteraarhorn in 1842, the Hasle Jungfrau and the Rosenhorn peaks of the Wetterhorn in 1844-5 (the highest, the Mittelhorn, was captured by a Scotchman in 1845). In 1857 the first English ascent of the Finsteraarhorn played an important part in the preparations for the foundation of the Alpine Club, which actually came into existence the following winter. A few days previous to the ascent last named an Englishman had conquered the Klein Schreckhorn, while in the following years his compatriots gathered up most of the great Oberland peaks that had not yet felt the foot of man—so the Eiger (1858), the Aletschhorn and the Bietschhorn (both in 1859), the Blümlisalphorn and the Oberaarhorn (both in 1860), the Gross Schreckhorn (1861), the Gross Fiescherhorn (1862), the Balmhorn (1864), the Gross Nesthorn (1865), and the Gspaltenhorn (1869), besides forcing several difficult glacier passes, among which were the Eigerjoch (1859), the Jungfrau-

joch and the Fiescherjoch (both in 1862), the Wetterlücke and the Roththalsattel (both in 1864).

The Bernese Alps have thus had considerable importance in the history of the Alps, and have brought about mightier changes and results than might have been expected in the case of a range which stands aloof from the main watershed of the great chain.

9. **Lepontine Alps.**—It was practically convenient to consider the Bernese Alps (even though not on the great divide) immediately after the Pennines, for the two ranges face each other across the upper Rhone valley. But we must now return to the main watershed, and resume our tale with a notice of the most westerly portion of the main Central Alps—the Lepontine Alps. Now these Alps are held to extend from the Simplon to the Splügen Pass (6946 ft.), keeping S. of the Furka Pass (that separates them from the Bernese Alps) and of the Oberalp Pass (6719 ft., that distinguishes them from the range of the Tödi). Now the very name of ‘Lepontines’ seems to exercise a curious effect on the minds of many persons, as it appears to carry a flavour of mystery about it, and this is even more the case if one speaks of the ‘Adula Alps,’ the special appellation that is often given to the E. half of the chain. Yet this feeling of not being on speaking terms with the Lepontines has no real foundation, for it often happens that, without suspecting it, these timorous travellers actually visit the Lepontines, or gaze on them without being aware of it. Practically no wanderer through the Alps has never crossed over or burrowed beneath the St. Gotthard Pass (6936 ft.), which cuts the range into two halves. As his train thunders down from Airolo to Bellinzona by that most amazing and daring of all railway lines, he may find a minute free to consult his Guide-book (let *me* hope that it is a *Murray* and not a *Bädeker*). It will inform him that the deep-cut valley down which he is being whirled is called the ‘Val Leventina,’ and that is but the modern form of the ‘Vallis Lepontina.’ Hence he is really in the heart of the Lepontines, without realising it. Again, if when he has ever studied the view towards the South, either

from the Belalp or from the Eggishorn, he cannot fail to have noticed the long mountain-chain immediately in front of him, and that is the Lepontines, though possibly he may pay less attention to them than to the grander Pennines, to see which, however, he must turn his eyes far to the right.

The Lepontines, therefore, are neither so inaccessible nor so rarely to be seen as is not infrequently imagined. But the two halves of the chain offer curious contrasts, and hence are sometimes considered as forming two sections of the Alps. In the W. half, one of the first things that strikes one is that the tendency so marked in the case of the Bernese Alps, that the glens on its S. slope should be short and steep, is reproduced as regards the N. slope of the Lepontines. Between the Simplon and the St. Gotthard there is but a single glen of any extent on that slope, and that glen is the only one which is permanently inhabited. We allude to the valley of Binn, that opens just behind Fiesch, and is so conspicuous from the Eggishorn. It is reached on that side through a fine, rocky gorge which in winter is so dangerous to traverse that a former priest of Binn ended his letter with the melancholy signature, 'Vicar of Binn, near the world' (*prope mundum*). Hence, though the Binn people have always belonged to the Vallais, their relations with their Italian neighbours are very close, whether in the way of legitimate trading or of smuggling. Several easy passes lead over in that direction, particularly the Albrun (7907 ft.), that as far back as 1425 was crossed by an army bent on the conquest of the Val d'Ossola. For this reason, Binn, since a comfortable little inn was opened there in 1883, is the natural headquarters of a traveller in these parts, and all the neighbouring peaks can be easily attained thence in the day. But if, with this exception, the glens on the Swiss side of the western half of the Lepontines are short and steep, the contrary is the case on the Italian slope. There we have a deeply-cut and very well-marked valley, that is watered by the Toce or Tosa, but assumes, after it has been joined (a little above Domo d'Ossola) by the Doveria, flowing from the Simplon Pass, the better known name of the Val d'Ossola, the historical fortunes of which were set forth in

Chapter VII. above. Close to the head of this valley are the magnificent Tosa Falls, with another good mountain inn, whence the very easy glacier Gries Pass (8098 ft.) leads over to the head of the Vallais, while the grassy pass of San Giacomo (7573 ft.) affords access to the Val Bedretto, that joins the St. Gotthard route and the Val Leventina at Airolo. Two mountain glens descend from the main range towards the Tosa, those of Val Cairasca and of Val Devero, both now boasting of small mountain hotels, built on the highest pastures in either valley, those respectively of the Veglia and of the Devero Alps. The monarch of this half of the chain is the Monte Leone (11,684 ft.), that rises just E. of the Simplon, and commands, as do most summits of the chain, most wonderful views of the Bernese Oberland peaks, while (unlike its neighbours) it can also boast of a glorious prospect over the great Lombard lakes. These are not seen from the Blindenhorn (11,103 ft.), or from the Basodino (10,749 ft.), the general panorama from the former summit far surpassing, in the writer's opinion, that to be obtained from the latter, which most unjustly enjoys a wider reputation.

Another characteristic of the western half of the Lepontines is the existence in the middle reach (specially known as the Val Formazza or the Pommat valley) of the upper Tosa valley of a most interesting Vallaisan colony, that preserves even to this day its German dialect. It was established here before 1253, as in that year an offshoot of this colony, at Bosco, was erected into a separate parish, so that the original settlers probably came from the Vallais (perhaps over the Gries Pass) in the early thirteenth century, or possibly even earlier.

The mention of Bosco may serve as a transition to our notice of the eastern half of the Lepontines, for Bosco is a hamlet at the head of one of the glens that go to make up the Val Maggia, which, with its tributaries, and its neighbour, the Val Verzasca, now bears the name of the 'Valleys of Locarno,' as they all converge towards that town, that is built at the northernmost tip of the Lago Maggiore. The hills therein, as well as those that surround the Lakes of Lugano and of Como, are sometimes distinguished by the special name of the 'Lesser Lepontines.' Now

these valleys, unlike that of the Tosa, are politically Swiss (since 1512) as are their neighbours on the S. slope of the eastern half of the Lepontines, the Val Leventina (permanently since 1440) and the Val Blenio, with Bellinzona (held since 1500)—all these valleys, with the Lugano region, forming since 1803 the Canton of Ticino or Tessin, or 'Italian Switzerland'—and the Val Mesocco (won in 1480), that was of old included in the Rætian Leagues, and so now forms part of the Canton of the Grisons. Thus, while most of the S. slope of the western Lepontines is Italian, the whole of that slope in the case of the eastern Lepontines is Swiss. (Full details as to the exact causes of this curious extension of Switzerland on the S. slope of the Alps will be found in Chapters VI. and VII. above).

There is one point, however, in which the two halves of our region resemble each other—the settlements of thirteenth century German-speaking colonies from the Vallais, both in the Val Formazza and around the sources of the Rhine, particularly those of the main or Hinter branch of that famous river. This curious preference of the Vallaisans for the Lepontine Alps does not yet seem to have received its definitive explanation, though the fact of the settlements is certain enough.

The remarkable feature as to these colonies at the sources of the Rhine is that they now form islands in the midst of a Romansch-speaking population, for this ancient historical tongue replaces in the eastern Lepontines the Vallaisan-German of the western half, of course on the N. slope only, since on the S. slope in both halves Italian is the prevalent language.

In the midst of the Lepontines is the celebrated St. Gotthard Pass and group, which, it is well known, is one of the main sources in the Alps whence great rivers flow down. Hence the Lepontines, though able to claim but few and unimportant tributaries of the Rhone, can claim the entire course of all three branches of the Rhine, above Reichenau (some six miles W. of Coire), as well as of the Tosa, and of the Ticino, besides the actual sources, though not much more, of the Reuss. This extraordinary wealth of water accounts for the odd fact (already pointed out in Chapter I.), that the lower peak (9922 ft.) of

the Wytttenwasserstock (a little W. of the St. Gotthard Pass) (like the Pizzo Lunghino, near the Maloja) sends streams to three seas, in this case to the Mediterranean (through the Rhone), the Hadriatic (the Tosa and the Ticino join the Po) and the North Sea (through the Reuss and the Rhine).

As will be seen from our list of Peaks and Passes printed in Appendix 1., many of the highest summits of the Lepontines are in their eastern half, though the loftiest, the Rheinwaldhorn (11,149 ft.), must bow to the Monte Leone (11,684 ft.) in the western half. These summits of the eastern half were, with those of the Range of the Tödi, just opposite, the scene of the long-continued explorations in the late eighteenth and early nineteenth centuries, made by the Benedictine monk of Disentis, Father Placidus à Spescha (1752-1833), whom we commemorate, as one of the early pioneers of Alpine climbing, in Chapter IX. above. Nor should we omit the notable fact that the Upper or Grey League (Ober or Grauer Bund) of the Rætian Confederation included practically the whole of the eastern half of the Lepontines, as has been duly set forth in Chapter VII. The extension of this League over the S. slope of the Alpine chain was greatly facilitated by the easy passes which lead over thither from the eastern half of the Lepontines, such as the Lukmanier (6289 ft.), a pass which has always been cast into the shade by its neighbours, the San Bernardino or Vogelberg (6769 ft.)—the entire route over both these passes has the great advantage of being (at least since 1500) within Swiss territory—as well as the Splügen (6946 ft.), of which the S. slope was Swiss (as forming officially part of the Valtelline) from 1512 to 1797.

10. **The Range of the Tödi.**—Just as the Bernese Alps and the western half of the Lepontine Alps rise opposite each other on either side of the upper Rhone valley, so do the eastern half of the Lepontines and the Range of the Tödi, the Vorder Rhine valley serving as the limit between them. Our district thus extends from the Oberalp Pass, on the S., to the Klausen Pass (6404 ft.), on the N. It forms rather a long-drawn-out chain,

though not very wide, save a little to the N.W. of its highest summit, where the considerable snow-fields of the Hüfi and Clariden glaciers close respectively, the Maderanerthal in Uri, and at the W. end of the group, and the Sandthal in Glarus. The main ridge of the group is the boundary between the Grisons and Glarus, while the Tamina and Weisstannen glens, at the N.E. end of the district, are in the Canton of St. Gall. On a small scale, our range resembles the Bernese Alps, in being wholly Swiss, though divided among several Cantons, here four in number, there seven. Like the Bernese Oberland, our range forms one of the great outliers of the Alps, while its culminating summit, the Tödi (11,887 ft.), is the most northerly important peak in Switzerland. It thus looks naturally towards the north, on which slope all its principal glaciers (generally called 'Firn' or 'névé' on the Swiss Government map) flow down. The Tödi is the highest snowy summit which is visible from Zürich, so that one seems to be getting here into a new part of Switzerland. Very fitly, therefore, does the river that passes through Zürich, the Limmat, take its source in the snows of the Tödi, though there it bears the name of Linth. Notwithstanding these northern inclinations, our range was first explored from the Grisons side, though these explorations were practically the work of a single man, the Benedictine monk, Placidus à Spescha (1752-1833), who plays so conspicuous a part in the Alpine history of this group and of the eastern half of the Lepontines. Forty years later, Georg Hoffmann (1808-1858), of Basel, devoted himself to the peaks of the Maderanerthal. The first Zürich man who undertook the exploration of this group was Johannes Hegetschweiler (1789-1839), who tried the Tödi from the Glarus side as early as 1820 and 1822. As is well known, it was first successfully climbed in 1824 by two Grisons chamois hunters sent out by Father Placidus, the ascent of the upper snows being made on the Glarus side, though they had been reached by the Porta da Spescha from the Grisons. In 1837 the most prominent point of the Tödi on the N. side, the Glarner Tödi (11,815 ft.), was nearly attained by some Glarus peasants, though the actually highest point was not touched till it was

visited in 1853 by Herren G. Studer (of Berne), J. J. Siegfried and M. Ulrich (both of Zürich). Oddly enough, the culminating point of the Tödi that lies back, when looked at from the N.E., was not climbed direct by the Glarus side till 1861. Soon after, the district became the scene in 1863 of the first activities in the way of climbing of the infant Swiss Alpine Club, the 'Section Tödi' being one of the most energetic among the earliest sections of the club. Nowadays the Tödi range is the favourite resort (especially on Saturdays and Sundays) of young Zürich climbers, very few expeditions being made from the Grisons side. To English mountaineers the best-known bit of the region is the Maderanerthal, where a comfortable Alpine inn, built at a considerable height, serves as a good starting-point. This beautiful glen is inhabited in summer only, apart from the small hamlets of Bristen and of Golzeren, both near its entrance. Its name is said to be derived from a sixteenth century Italian miner, one Madrano, who worked iron mines in the hollow between the Grosse and the Kleine Windgälle. This nearly uninhabited glen is balanced by another, the Calfeisen valley, at the N.E. extremity of the range, now visited only in summer (but a single house is permanently inhabited) for the sake of its pastures, particularly those of Sardona at its head: it was occupied in the first half of the fourteenth century by another of those enterprising German-speaking colonies from the Vallais. The Calfeisen colonists are first mentioned in 1346, but the date of their immigration is not known, even approximately. This colony still flourished as late as 1518, but was then no doubt gradually absorbed by their Romonsch neighbours, though various Teutonic place-names still survive as proofs of its former existence. It is certainly odd to find an Italian miner at one end of our range and a set of German-speaking Vallaisans at the other. The Calfeisen valley belonged to the powerful and wealthy Benedictine monastery of Pfäfers (720-1838), for our glen is simply the uppermost bit of the Tamina valley, which lower down forms the famous Gorge of Pfäfers. Another fine gorge in the region is the amazing Limmerntobel, cut deep at the foot of the precipices of the Selbsanft, and joining (close to the

Pantenbrücke, above the Baths of Stachelberg) the fine, though less surprising, cleft in which the Linth flows. Mention must be made of the great landslip of 1881 above Elm, on the N. side of the range, when a portion of the slate quarries gave way, and killed one hundred and fifteen persons, besides inflicting great material damage. Not far from these quarries, and conspicuous from Elm, is the singular hole pierced by nature right through the main range, and called 'Martinsloch.' This most curious natural phenomenon is easily reached. It is 72 ft. high on the Glarus side, and 49 ft. on the Grisons side, with a breadth of 46 ft., and the sun shines through it on several days in the year. But, in the writer's opinion, the pearl of the range is the hamlet of Brigels, nestling on its splendid shelf of pasture, and raised high above the bed of the Vorder Rhine and Ilanz, while surrounded by glorious forests, backed by the fantastic crags of the Kavestrau rock needles, and commanding an almost unlimited panorama towards the peaks that rise round the sources of the main branch of the Rhine.

11. The Alps of North-East Switzerland.—As a general rule, it is best, when describing the principal groups of the Alps, and without attempting to make any very minute divisions, to include the foot-hills in the loftier mountain mass of which they form the outliers. But in two cases at least it seems desirable to make an exception to this rule, and to set up separate sections for the description of these relatively low mountain ridges—viz. the cases of the Alps of North-East Switzerland, and of those of Bavaria, the Vorarlberg, and Salzburg (see Group 15 below). Our reason is that in both cases, amid many minor summits and smiling pastoral valleys, there rise summits which still bear perpetual snow, and which form islets, as it were, that have no direct connection with loftier snow-bearing ranges.

As regards the Alps of North-East Switzerland the best limit seems to be that formed by the Klausen Pass (6404 ft.), which leads from Altdorf to Glarus, placing all the mountains N. of that limit in our group, while those to its S. have been noticed

above under the head of the 'Range of the Tödi.' In our group we may distinguish perhaps four minor groups. Two of these may be dismissed briefly, as they lack perpetual snow. One is formed by the two sharp rocky cones of the *Mythen* (6240 ft.), that are so conspicuous from the Lake of Lucerne, towering grandly above Schwyz, and its port of Brunnen. If a path had not been blasted out of the rock to the summit of the higher of the two, the ascent would be difficult, and it would have been impossible either (as is the case) to build a little inn up there, or for its tenant to have spent some thirty summers in it. The other minor group is that of the *Kurfürsten* (7576 ft.), or 'Seven Electors' (that is, to the crown of the Holy Roman Empire), which rise like sentinels in fine precipices to the N. of the Lake of Walenstadt, and form the boundary ridge between that lake and the upper Thur valley, or the 'Toggenburg.' This ridge sinks on the W. to the *Speer* (6411 ft.), while on the E. it rises a little to the slightly higher summits of the *Faulfirst* (7825 ft.) and the *Alvier* (7695 ft.), which crown the spur separating the *Seez* glen from the main Rhine valley. Of these seven summits of the *Kurfürsten* the two highest points, the *Hinterruck* and the *Käsernruck*, are the most singular, because, though very steep on the S. side (in mist it is nearly impossible to find the way without minute local knowledge), on the N.E. slope, towards the *Toggenburg*, they form gently inclined pastures of the easiest kind. Thus once upon a time the writer, having groped in a mist for many hours at the S. foot of this range, succeeded at last in gaining its crest, and was then much startled by meeting cows tranquilly wandering about, instead of the fresh precipices which he had expected to encounter.

More interesting to mountaineers are the two other minor groups, those of *Glärnisch* (9580 ft.) and of the *Säntis*. Both rejoice not merely in fairly extensive snow-fields (no true glaciers), but in remarkably imposing rock precipices, which at first sight promise a hard scramble, though they are easily turned. The grand spur of the *Vorder Glärnisch* (7648 ft.), that overshadows the little town of Glarus, hides the loftier summits of the chain, which lie some way back. Still farther to the S.W.

is a most desolate tract of country, composed largely of riven limestone plateaux, pierced with many loathsome holes ready to engulf unwary travellers, and culminating in the Böser Faulen (9200 ft.), and the Silberstock or Ortstock (8824 ft.). This barren region, that stretches towards the head of the Muota valley, has a most repulsive appearance from afar off, and would probably not improve on nearer acquaintance. Glärnisch itself is easily reached by way of the surprisingly large snow-field that fills the hollow enclosed by its two higher summits. The panorama should be very fine, but the writer has always had hard luck on this peak, once reaching it in mist, then seeing nothing and hearing only the railway whistle at Glarus far below, and on several other occasions being prevented from even reaching the Club hut, since, as soon as he approached the region, bad weather set in.

The *Säntis* (8216 ft.), rightly called the Hohe Säntis, though lower than Glärnisch, is a far more extraordinary range. Though crowned by a meteorological Observatory and a fair mountain Hotel, neither can be reached save after mounting one of two by no means tiny snow-fields and a rock staircase. That is the easy route up, but there are others which are more painful. If, as did the writer in 1905, one drives from the Toggenburg to Appenzell over the rolling downs to the N.W. of the Säntis, that range stands up most grandly, with its gaunt pale limestone precipices relieved against the blue sky, and one can hardly believe this imposing chain is really 600 ft. lower than the well-known Faulhorn, behind Grindelwald. The unexpected grandeur of the Säntis is in part due to its remarkably isolated position, just on the rim of the higher Alps. The writer once enjoyed an amazing sunset from its summit, the clouds being blood-red, and that colour being reflected on the earth, as far as the flame-tinted Lake of Constance, across the hills that gradually sink in height somewhat like the waves of a great green sea. As on the Besimada, in the Maritime Alps, years before, he realised how the Alps break down into the plains, the waves becoming smaller and smaller as they gain more tranquil regions. Another characteristic of the Säntis range is the number of Alpine lakes,

hidden away in the deep narrow glens that seam its N.E. flank. The waters of these tarns make all the greater effect by the contrast they afford to the pale grey cliffs and stony slopes that hem them in. In thinking of the Sântis one must mention by the way that quaint little seventeenth century chapel of Wildkirchli (the 'wild chapel'), hidden away in its shadowy cave, that has been hollowed out by Nature in the cliffs of the N.E. extremity of the Sântis range. Always striking and picturesque, even when viewed from below, it gains much local colour on the first Sunday in July, when the Feast of the Guardian Angels (the chapel is dedicated to St. Michael) is locally kept, and the whole mountain-side resounds with the cries of the Appenzellers, who, when jodelling, bark like dogs. One feels that Appenzell and the Sântis still keep those traits which distinguish this region so delightfully from tourist-overrun districts away to the S.W. The writer has visited Appenzell several times, and came away on each occasion with a sentiment of deeper thankfulness that primitive simplicity still reigns in the land that, above all, is the centre of primitive democracy, and whose citizens attend the great annual *Landsgemeinde* or Assembly with sword girded on thigh, like their forefathers. The local costumes, too, are still kept up, even to some extent on week-days, though the canary-coloured shorts and the scarlet waistcoats of the herdsmen are not a patch on the marvels of the festival attire of the women, on such a great occasion as the striking procession on the Feast of the Assumption (August 15) through the streets of the little town-village of Appenzell.

12. **Bernina Alps.**—We must now return to the Splügen Pass, which we left in Section 9, and study the Alpine chain that stretches thence to the Reschen Scheideck Pass which marks the end of the Central Alps. Here two topographical difficulties confront us at once, and we have to make a choice between them. The range running eastwards from the Splügen forms part of the Albula group, but when it attains a point near the Maloja Pass (5935 ft.), the main watershed bends S.E. and continues along the crest of the Bernina Alps. In this way the greater

portion of the Albula group is not on the main divide, while it is continued by the Silvretta group, so that it is practically most convenient to consider these two mountain masses after the Bernina Alps. On the other hand, the W. wing of the Bernina Alps (we mean the range S.W. of the Muretto Pass) is a mere spur, for the great watershed does not touch the Bernina Alps till a little to the E. of the Muretto Pass. Thus whichever alternative we select, it is inevitable that a portion of our range will not be on the main watershed of the Alps. In this perplexity let us give the preference to the Bernina Alps, which are much loftier than the Albula group, and of which a much more extensive section is really on the Alpine watershed.

A glance at the map shows that when the main range resumes its E. direction, after a short S. diversion from the Splügen, it is faced for a long distance by another, which runs parallel to it, the general direction being N.E. Between them lie two great mountain valleys or trenches which at some distant period probably formed but one—the Val Bregaglia (watered by the Maira) and the Engadine, or upper (Swiss) portion of the valley of the Inn. The more northerly of these two ranges is that of the Albula, continued by that of the Silvretta, while the more southerly forms the Bernina Alps, to the S. of which is another great valley, the Valtelline, also roughly parallel to those just mentioned.

Now in our sense the Bernina Alps stretch from near the head of the Lake of Como right away to the Reschen Scheideck (4902 ft.) and the Stelvio Passes (9055 ft.). Like the Bernese Oberland, they form a central mass, flanked by two wings, the Muretto (8389 ft.) and the Bernina Passes (7645 ft.) forming the limits that mark off the central mass from its outliers. This central mass is the Bernina group *par excellence*, its name being taken from the pass, and not *vice versa* as is sometimes imagined. It is the lofty snowy range so well known, at least by sight, to all visitors to the Upper Engadine, though its peaks are not as much visited as is usual in the case of a great mountain group. On the N. slope two great glaciers flow down majestically, the more westerly, that of Roseg (swollen by its neighbour, the Tschierva)

ending in the Roseg glen that terminates close to Pontresina. The more easterly glen is all but entirely occupied by the Morteratsch glacier, and ends some way above Pontresina. Now very nearly at the head of these two great glaciers, yet a little on the Swiss side of the watershed, rises Piz Bernina (13,304 ft.), the monarch of the group, and the loftiest summit in the Alps E. of a line drawn from the Simplon Pass up the upper Rhone valley and then over the Grimsel Pass—in short, E. of the Pennines, on the main watershed, and of the central mass of the Bernese Alps, on the more northerly line. Hence Piz Bernina is remarkable, as it surpasses not merely every peak in the Eastern Alps, but also all those in the Central Alps, save in the case of the Bernese Oberland. But it is not very much higher than its immediate neighbours, so that it does not make so deep an impression on the mind of the spectator as might be expected from its really great height. The peak, however, has another, though less permanent, claim to notice. Its first ascent was made as far back as 1850 by Herr J. Coaz (b. 1822), who climbed, in the course of his journeys as one of the Federal map surveyors, many other peaks in and around the Engadine, one as early as 1845. He still survives, hale and hearty, the Nestor of living climbers, though nearly fifty-eight years have elapsed since he conquered Piz Bernina.

To the S. of the main mass is a considerable mountain district, closed at its head by several great glaciers, those of Scerscen, of Fellaria, and of Verona, the waters flowing from which descend through various glens that unite to form the Val Malenco, down which runs the track from the Muretto Pass to Sondrio, the capital of the fertile Valtelline. This region between the Bernina main range and the Valtelline is wholly Italian, but is more rarely visited and explored than perhaps any district in the High Alps, save perhaps that which extends S.E. of the Tour du Grand St. Pierre in the Eastern Graians.

To the S.W. of the Muretto Pass the *W. wing* of the Bernina Alps is about equally divided now between Switzerland and Italy, though, when the Valtelline was held by the Grisons from 1512 to 1797, it was, in a sense, wholly Swiss. Hence it bears the



THE MONTE DELLA DISGRAZIA (GERNINA ALPS) FROM THE FELLARIA GLACIER

double name of the 'Bregaglia district,' and of the 'Mountains of Val Masino,' the chief glen on its S. slope. It is composed of a fine series of granitic peaks, divided from each other by two steep and narrow glaciers (those of Bondasca and Albigna), and a much longer though much more level field of ice, known as the Forno glacier, the stream from which descends direct to the Maloja Pass. Several easy smugglers' passes cross this range, while others have been forced of recent years, but the exploration of the higher summits of the group did not begin till as late as 1862, and has to a great extent been the work of perhaps only half-a-dozen climbers. The loftiest summit on the divide of the W. wing (though not, be it remembered, the main divide of the Alps) is the Cima di Castello (11,155 ft.), though much better known are the twin summits of the Piz Cengalo (11,070 ft.) and of the Piz Badile (10,863 ft.), which make such a grand show when seen from above St. Moritz across the broad opening of the Maloja. The culminating point of the entire region is, however, the Monte della Disgrazia (12,067 ft.), which rises as a great spur on the Italian side, and therefore is comparatively unknown, although in itself a magnificent peak. All the four summits named were first conquered by English climbers between 1862 and 1867.

Let us now turn our attention to the *E. wing* of the Bernina Alps, that namely extending N.E. of the Bernina Pass, till it touches the Tyrol at the Reschen Scheideck and the Stelvio Passes. It is a wild and strange, though very interesting region, especially from the historical point of view. It is made up in part of the valley of Livigno, which sends its waters to the Lower Engadine. Situated on the N. slope of the main watershed of the Alps, the fate of this valley has always been linked with that of the county of Bormio, of which the other half, W. of Bormio itself, consists of the glens which give rise to the infant Adda. Now, as the county of Bormio has for ages formed part of the Valtelline, it follows that Livigno has had the same historical destiny as that great valley, so that while it was Rætian from 1512 to 1797, it became in 1859 part of Italy. Thus, with certain districts in the Maritime Alps and the Val di Lei (simply

a pasture valley), it is the only fragment of present-day Italy which lies N. of the Alpine watershed. To redress the balance, as it were, another glen included in our region, that of Münster, is, at any rate in its upper reach, politically Swiss since 1762, although it is on the S. slope of the main chain. Thus we have the curious anomaly (noticed in Chapters vi. and vii. above) that Italian-speaking Livigno is politically Italian, though the Spöl joins the Inn, while Ladin-speaking Münster is Swiss, though the Ram is an affluent of the Adige.

The best-known summit in the E. wing is undoubtedly the Piz Languard (10,716 ft.), the well-known belvedere of Pontresina. It rises at the extreme S.W. extremity of our district, but is surpassed in point of height by a number of other peaks, which stand far away to the E. and S.E., and form, as it were, small, semi-detached groups; such are the Cima di Piazza (11,283 ft.), the Cima Viola (11,103 ft.), and the Cima di Saoseo (10,752 ft.), all situated a little to the S.W. of Bormio. More to the N. are the Corno di Campo (10,844 ft.), Piz Quaternals (10,348 ft.), and Piz Murtaröl (10,424 ft.), while beyond the Ofen Pass (7071 ft.) are Piz Plavna da daint (10,414 ft.), Piz Tavrü (10,394 ft.), Piz Pisoc (10,427 ft.), Piz Lischanna (10,204 ft.), and Piz Sesvenna (10,568 ft.): near the Stelvio are Piz Umbrail (9955 ft.), close to the historical pass (8242 ft.) of that name, the secular rival of the Stelvio (9055 ft.)—they are traversed by two of the three highest carriage roads in the Alps (they are separated, in this point, by the Col du Galibier, 8721 ft., in the Dauphiné Alps)—and the Dreisprachenspitze (9328 ft.), the knoll, where meet the limits of the German, Italian, and Ladin tongues, as well as the actual political frontiers of Switzerland, Italy, and Austria. Indeed the E. wing of the Bernina Alps offers a series of fascinating puzzles to those who delight in unravelling complicated problems, for its physical, political, and linguistic characteristics overlap in a bewildering fashion. It requires detailed local knowledge indeed to be able to trace (see Chapter vii. above) the exact line of the main watershed of the Alps between the Bernina and Reschen Scheideck Passes, while other entanglements will be met with on the way. Perhaps this is

one reason why our region is little visited save in the case of the peaks that overhang the Engadine (Upper or Lower), though it boasts of many attractions, picturesque and historical, even though they may not be absolutely of the first rank.

13. **Albula Group.**—Under this name (taken from that of its now best-known pass, beneath which the railway tunnel connecting the Engadine for the first time with the outer world by a quick and easy route was opened in 1903) a lengthy range stretches from the Splügen to the Maloja, and the Flüela Passes (7838 ft.), that mark it off respectively from the Bernina Alps, and from the Silvretta group. As noted in the preceding section, it forms the main watershed of the Alps till near the Maloja, but then becomes merely a lateral range that limits the Engadine on the N.W.

Three deep-sunk valleys, divided from each other by four mountain ridges, make up our region—the valleys being those of Avers and Oberhalbstein,—both leading from the Hinter Rhine valley to the Upper Engadine, the former by the Forcellina Pass (8770 ft.) combined with the Forcella di Lunghino (8645 ft.), and the latter by the Julier Pass (7504 ft.)—and the Albula glen (a tributary of the Rhine), through which a carriage road over, and a tunnel beneath, the Albula Pass (7595 ft.) give access to Ponte in the Upper Engadine.

As a valley must by the nature of things be enclosed by two ridges, the first and second of our four ridges surround that of Avers. Of that singular glen we spoke in Chapter vi., for it presents most remarkable political, linguistic, and historical peculiarities, though its population only amounts to three hundred and sixty-six souls. To us here it is most interesting, because at its head is the hamlet of Juf, which enjoys the distinction of being the loftiest permanently inhabited village in the Alps, as its twenty-four inhabitants live at a height of no less than 6998 ft. Just at the point where a gorge separates the two halves of the Avers glen, a torrent rushes in from the Val di Lei, a pasture valley descending from the most westerly of our four ridges, so that this glen (politically Italian, though situated on

the N. slope of the Alps) sends its waters to the Rhine; the facts that its lower reach forms a savage gorge, while an easy pass connects it with Chiavenna, probably account for its curious political position, though, like Livigno (mentioned in the last section), it was Rætian from 1512 to 1797, and only became Italian in 1859. It is an even longer glen than its neighbours of Madris and Bregalga, so that, while the passes from the head of each over to the Val Bregaglia are quite easy, the ascent on the N. slope is much more gradual than the short though steep descent on the S. slope. In our most westerly ridge the chief summits are the Surettahorn (9945 ft.), just E. of the Splügen, the Piz Timun or d'Emet (10,502 ft.), the Pizzo Gallegione (10,201 ft.), a little W. of which the ridge bends from a southerly to an easterly direction, and the Pizzo della Duana (10,279 ft.), to the N.E. of which the second of our four ridges unites with the most westerly. In that second ridge the chief summits are the Piz Platta (11,109 ft.) and the Averser Weissberg (9987 ft.)—two superb belvederes, accessible with ease in a short time from Cresta (6395 ft.), the chief village of the Avers glen—while more to the N.E. are the twin black peaks of Piz Forbisch (10,689 ft.) and Piz d'Arblatsch (10,512 ft.).

Not very far east of this point of junction and of the tracks over the ancient historical pass of the Septimer (7582 ft.) rises the Pizzo Lunghino (9121 ft.), a summit of great topographical importance, first because here the main watershed of the Alps splits off to the S.E. over the Maloja to the Bernina Alps (so that henceforth the Albula group is of merely secondary importance), and next, because from it (as from the Wyttengewasserstock in the Lepontines) streams descend towards three seas, in this case to the Adriatic (the Maira joins the Po), the North Sea (the stream from the Septimer Pass falls into the Rhine), and the Black Sea (which is fed by the Inn through the Danube).

Our third ridge divides the Oberhalbstein glen (or the Julier route) from the Albula glen, and is far loftier than its two more westerly neighbours. First we have the very considerable snow-covered Err group, though its culminating point is now called the Piz del las Calderas (11,132 ft.), that of Piz d'Err being

but the second in height (11,093 ft.). More interesting, however, are three summits that rise to the N. of the Err group, the Piz d'Aela (10,959 ft.), the Tinzenhorn (10,430 ft.), and the Piz Michel (10,378 ft.). The two last named show from the health-resort of Davos as boldly as the Piz Cengalo and the Piz Badile do from above St. Moritz across the wide opening of the Maloja, while all three are true Dolomites, though not in the South Tyrol. As is well known, magnesian limestone is found sporadically in the Alps, outside the South Tyrol. We have noted several peaks of this nature in the low ranges S.W. of Grenoble, in the Dauphiné Alps, while there is the striking, though isolated, Pizzo Columbè (8363 ft.) in the eastern Lepontines, between the St. Gotthard and the Lukmanier Passes, as well as the quaint group of the Splügen Dolomites (just N. of the village of that name, and also in the eastern Lepontines), which attains a height of 9991 ft. in the Alperschellhorn. But the Piz d'Aela and its two neighbours seem to be the most important and loftiest group of this geological character outside the South Tyrol. They are often specially named the 'Bergün Dolomites' from the village at their N.E. foot, and now on the Albula railway.

Our fourth 'ridge' is rather a range, or, strictly speaking, two ranges, separated by the Scaletta Pass (8593 ft.), by which Davos and the Upper Engadine most easily communicate, for the Flüela Pass (7838 ft.), though traversed by a carriage road, leads from Davos to the Lower Engadine, as it reaches the Inn valley below the Punt' Ota, the ancient limit between the two divisions. Each of our two ranges serves as the centre from which radiate a number of glens of some length, mainly on the Davos or N. slope, though the Sulsanna glen, on the Engadine slope, is scarcely, if at all, inferior to them in this respect. Each group culminates in twin summits of nearly equal height, the more westerly being Piz Kesch (11,228 ft.), the loftiest summit in the entire Albula group, and the more easterly Piz Vadret (10,584 ft.). In both cases the actual highest peak was first conquered by an English party, in 1864 and 1867 respectively.

As will be seen, the Albula group is much inferior in height to the central mass of the Bernina Alps, while Piz Kesch is even surpassed by the Cima di Piazza (11,283 ft.), the monarch of the E. wing; the Cima di Castello (11,155 ft.), the highest point on the main ridge of the W. wing, is slightly inferior to Piz Kesch, though the true culminating summit of the W. wing, the Monte della Disgrazia (12,067 ft.), is indeed considerably loftier. The peaks of the Albula group are thus rather dwarfed by their mightier neighbours across the upper Inn valley. But, as generally happens, the finest panoramas are obtained from secondary ranges, so that the Albula group stands very high in this respect. The writer can speak enthusiastically of the views from Piz Platta, the Averser Weissberg, and Piz della Calderas. That from Piz Vadret was rather disappointing, as it stands at a wrong angle for the proper appreciation of the central Bernina Alps, while to the N.W. the snowless summits around Davos present a monotonous aspect in keeping with the melancholy associations of that sad spot. Envious mists hid everything when the writer visited Piz Kesch. In short, the Albula group, like the Lepontines, offers many superb belvederes, though from a mountaineer's point of view they are inferior (saving Piz d'Aela with its two comrades, and the three are all strangers, so to speak, in the region) to most of the Bernina Alps.

14. **Silvretta and Rhätikon Group.**—This group, too, is a lengthy ridge, with the usual pair of spurs or outliers. From the Flüela Pass its watershed runs N.E., forming the Silvretta (a name spelt 'Selvreta' in the seventeenth and eighteenth centuries) group (the reader may or may not adopt at his choice the explanation of this term as referring to 'forests' or to 'silver snows') that rises in its four chief peaks, Piz Linard (11,201 ft.), the Verstanklahorn (10,831 ft.), Gross Piz Buin (10,880 ft.), and the Fluchthorn (11,165 ft.), before it sinks to the comparatively low ridge enclosing the Swiss side glen of Samnaun. Beyond that glen the Vesulspitze (10,145 ft.) and the Hexenkopf (9968 ft.) are the highest peaks, as the range gradually falls to-

wards the Reschen Scheideck Pass (4902 ft.), its N.E. limit as well as that of the Central Alps. The Silvretta range thus runs between the Swiss Lower Engadine on the S., and the Swiss Prättigau or Landquart valley on the W., while on the N. it is limited by the Tyrolese valley of Paznaun, and by the Vorarlberg valley (also Austrian) of Montafon. It is practically convenient to annex to our range the mainly Tyrolese district of Ferwall, that lies N. of the Paznaun valley, and S. of the Arlberg Pass (5912 ft.), its loftiest points being the twin summits of the Kuchenspitze (10,401 ft.) and the Küchelspitze (10,315 ft.), though its finest peak is the Patteriol (10,037 ft.), while its principal belvedere is the Hoher Riffler (10,368 ft.). The frontiers of Switzerland, the Tyrol, and the Vorarlberg meet at the summit called for that reason the Dreiländerspitz (10,539 ft.). But this politically important summit stands a little to the N.E. of the true orographical centre of the region, the Signalhorn (10,539 ft.), which rises a little to the N.W. of the mountains named Gross Piz Buin (10,880 ft.) and Klein Piz Buin (10,696 ft.). Hence the Silvretta range either bends N.W. or, if it is preferred to say so, throws out a great spur in that direction. On it rise the Silvrettahorn (10,657 ft.) and the rock needles of the Gross Litzner (10,207 ft.) and of the Gross Seehorn (10,247 ft.), before it sinks to the well-marked depression of the Schlappinerjoch (7218 ft.). This pass marks the limit between the Silvretta group and its continuation in the same N.W. direction, the Rhätikon range ('mons Rætico'), that rises in the Madrishorn (9285 ft.), the Sulzfluh (9252 ft.), the Drusenfluh (9282 ft.), and the Scesaplana (9741 ft.), before ending in the Falknis (8419 ft.), that towers over Ragatz and Sargans. From the Signalhorn the N.W. bit of the Silvretta range and the whole of that of the Rhätikon runs between the Swiss Prättigau valley, on the S.W., and the Vorarlberg (that is, Austrian) glens of Montafon and the Wallgau, on the N.E.

It will thus be seen that the whole of our group smacks of the Tyrol and the Vorarlberg, thus preparing us for the entirely Austrian character of the Eastern Alps. It is in part now politically Swiss, so far as regards its S. slope. But that slope

was once also Austrian, if not wholly Tyrolese, for the claims of the Habsburgers over the Prättigau were not bought up by the Rætian Leagues till 1649-1652, while the Lower Engadine was Tyrolese till 1652. As we pointed out in Chapter VII., the Tyrol itself came to the Habsburgers in 1363, while of the region later called by the general name of the 'Vorarlberg' (that is, 'before the Arlberg Pass,' when looked at from the point of view of any one crossing the pass to Innsbruck), the town of Feldkirch was bought by the Habsburgers in 1375, as in 1394 was that of Bludenz, with the valley of Montafon. The long and close connection between the Lower Engadine and the Tyrolese glen of Paznaun is illustrated by the curious fact (pointed out in Chapter IX.) that till 1383 Galtür, the highest hamlet in the Paznaun valley, was included in the parish of Ardez (which still owns the Gross Fermunt pastures at the head of the Vorarlberg glen of Montafon) in the Lower Engadine, being then allowed to have a priest of its own to serve the church built in 1359 owing to the difficulties of communication in winter over the Futschöl Pass (9098 ft.). Even to this day the Fenga or Fimber pastures, on the Tyrolese side of the Fimber Pass (8570 ft.), belong to the Swiss villages of Remüs and Sent, in the Lower Engadine, so that, oddly, the Heidelberg Club hut, the property of the German and Austrian Alpine Club, is actually situated on politically Swiss, though topographically Tyrolese, that is, Austrian, territory.

The Rhätikon chain generally falls in fine precipices on the Swiss side, but the N. slope offers easy access to the crest—in fact, many of its highest summits are of what has been called the 'writing-desk' shape. Hence they were early visited. In 1742 Nicholas Sererhard, the pastor of Seewis, gives us an account of his ascent (not the first) of the Scesaplana, though he did not climb it straight from the Swiss side, gaining the glacier on the other slope, by which the now usual way from the Lünensee lake and its 'Club hut' (really a nice little mountain inn) was joined. The 'Club hut' is named the 'Douglass [*sic*] Club hut' in memory of a young Scotchman (John Sholto Douglas) who owned a large factory near Bludenz, and died in 1875, at the age of only thirty-

six, by a sad accident on a hunting expedition. He had done some good exploration among the hills around Bludenz, his finest climb having probably been the ascent of the boldest summit of the Rhätikon, the Zimbaspitze (8678 ft.) in 1863, which he was the first traveller to visit, though it had previously been attained more than once by peasants of the region. The monarch of the entire group, Piz Linard (11,201 ft.), was certainly scaled in 1835 by Professor Oswald Heer, of scientific fame. But old Ulrich Campell, the sixteenth century historian of Rætia, has a wonderful tale of one Conrad (whence the peak was called 'Piz Chünard' or 'Conrad') who, at some date before 1573, succeeded in vanquishing this terrible mountain, and planted a golden cross on its topmost point. Many attempts were made later to reach and carry off this cross, but all were fruitless. This legendary Conrad and his peak reminds us of Bonifacio Rotario and the Rochemelon, near the Mont Cenis, and especially of the eleventh century attempts to carry away the treasure, deposited on its summit by the mysterious King Romulus, whose name was applied to the peak as late as 1456, and is perhaps to be detected in the present title of the mountain. The Fluchthorn, the second peak of our group, was first climbed in 1861, and long enjoyed a terrific, though wholly unmerited, reputation. But it was not till the then youthful Swiss Alpine Club set to work in earnest that the serious exploration of the range commenced in 1865, the next years seeing the defeat of the two little local Matterhorns, the Verstanklahorn and the Gross Litzner. The most extensive glaciers of the region, such as those of Fermunt, Jamthal, and Larain (note that in each case the special name 'Ferner,' applied to glaciers in the Eastern Alps, is applied to these, a sign that we are not far from, some would say already within, that division of the Alpine chain), are on the Austrian slope. But that of Silvretta, on the Swiss side, is no doubt the most generally known, for it shines on the horizon when looked at from the head of the Prättigau. It is accessible with the utmost ease from the small Silvretta inn and is perhaps the only Alpine glacier that has ever been the scene of a tobogganing race in winter.

At either extremity of our group are two singular historical survivals. At its N.W. end we have the independent principality of Liechtenstein connected by a Customs Union with Vorarlberg and by a Postal and Money Union with Austria, but a sovereign state since 1866, which takes its name from far-distant family castles in Austria and in Styria. The other, the extreme E. outpost of our region, is the quaint Swiss valley of Samnaun, nearly surrounded by the Tyrol, and so now speaking Tyrolese-German (instead of the Ladin it had kept up to one hundred years ago) because its communications with the Tyrol are very easy. Those with Switzerland are so difficult at present that recruits pass, with rifles and in uniform, by special leave over Tyrolese territory and past Bludenz in order to join their Swiss comrades at Coire; the new carriage road now being constructed from Martinsbruck in the Lower Engadine to the Samnaun valley will soon remedy this quaint state of things.

III.—EASTERN ALPS

15. **The Alps of Bavaria, the Vorarlberg, and Salzburg.**—This group, like the Alps of North-East Switzerland (No. 11), is one of foot-hills, though, as some bear perpetual snow, it seems best to promote these ranges to the rank of a distinct district. Our present group, then, comprises all the comparatively low, though striking, limestone ridges, that rise to the N. of a line drawn over the Arlberg Pass, and past Innsbruck to near Brixlegg, and thence over the Gerlos Pass (4876 ft.) down the Pinzgau and the Enns valley—in short, the series of detached groups that crop up to the N. of the mightier snowy ranges of the Rhätikon, of the Silvretta, of the Oetzthal and Stubai, of the Zillerthal, and of the Tauern Alps. As in the case of the Alps of N.E. Switzerland, no peak quite attains the height of 10,000 ft., the loftiest point of the whole region being the Parseierspitze (9968 ft.) to the N.W. of Landeck, though several other peaks that rise more to the E. are perhaps better known to English readers (not, however, to English travellers), such as the Zugspitze (9738 ft.), the Watzmann (8901 ft.), and the Dachstein

(9830 ft.). The reach of the Inn valley extending from Innsbruck to Rosenheim divides our group into two halves. To the W. of that limit are the mountain masses of the Allgäu, of the Lechthal, of Wetterstein, and of Karwendel, while to the E. of that portion of the Inn valley are the Kaiser and the Kitzbühel ranges, besides those of Berchtesgaden, of Salzburg, and of the Salzkammergut. All the higher summits, save the Dachstein, the Watzmann, and the Hochkönig, are comprised in the more westerly half, the watershed of which is throughout the boundary between Bavaria, on the N., and Austria (that is, Vorarlberg and the Tyrol), on the S. In the other half, our ranges divide Bavaria from the Tyrol, till near Salzburg, but then become wholly Austrian, separating the Austrian provinces of Upper Austria and of Salzburg from each other. No one can fail to wonder at the curious fashion in which the Berchtesgaden country makes a great dip to the S. into Austrian (Salzburg) territory. As pointed out in Chapter VII., this is due to the fact that the secularised territory of the Austin Canons of Berchtesgaden, given to Austria in 1803, but handed over to Bavaria in 1810, was quite forgotten in 1814, when Bavaria had to restore most of its recent acquisitions to Austria, and so was retained (despite later protests) by Bavaria, part of which it thus forms by a sort of historical accident. To us this quaint bit of historical geography is specially interesting, as in consequence the Watzmann, which rises slightly N. of the watershed, is now wholly Bavarian, the highest purely Bavarian summit, for (since 1803) the Zugspitze is on the frontier ridge between Bavaria and the Tyrol (therefore the highest point of which any slope is within the German Empire), while the Parseierspitze is wholly Tyrolese, and the Dachstein is at the meeting-point of Salzburg, Upper Austria, and Styria.

As such a considerable portion of our group is on the frontier between the Austrian Empire and Bavaria, the passes across it are important politically. They are often traversed by carriage roads, which, however, rarely exceed the height of 4000 ft., while at the E. extremity railways run through the

Lueg gorge from Salzburg, and beneath the Pyhrn Pass from Vienna, both leading to the Enns valley, and thus serving as approaches from the N. to the Radstädter Tauern, the pass which we have selected as the E. limit of the Alps. In both respects our group is better off than that with which it has most likeness, the Alps of N.E. Switzerland, but of course in the latter case political and frontier considerations do not come in. Like its Swiss rival, our group can boast of many lakes. But as a rule these are much more extensive than those of the N.E. Swiss Alps, which are little more than mountain tarns. Here, on the contrary, the lakes belong rather to the class of the Lakes of Thun or Brienz or Lucerne, on the N. slope, or of the great Lombard lakes on the S. slope.

There are, however, other points in which our two groups resemble each other. Each, though its height is small compared with that of its greater neighbours, displays rock precipices that are quite astonishing. In our group the gigantic S. walls of the Dachstein and of the Watzmann, and the N. wall of the Parseierspitze, are instances of this, while even the ordinary routes up the Zugspitze and the Parseierspitze have had to be rendered accessible to non-climbers by iron chains, paths blasted in the rock, etc., just like the Säntis. Yet, in both cases, the chief peaks were early visited, probably because men then preferred rocks to the unknown perils of the snows. The W. Karwendelspitze is known to have been climbed as far back as 1654, the Thorstein in 1819, the Zugspitze in 1820, the highest point of the Dachstein in 1832—alone the Parseierspitze remained virgin till 1869, probably because it did not stand on a frontier, and its real superiority was not ascertained till late.

In one respect portions of our group recall far-distant regions. The hunting rights (especially of chamois, and particularly in the Karwendel region) are owned by great nobles of various nationalities. These have constructed paths and built hunting-lodges, for their own convenience naturally, so that during the hunting season (September—October) travellers are warned against visiting these ranges. It is a case parallel to that of

the Maritimes and the Eastern Graians, where, however, it is a king (the ruler of Italy), and not merely great nobles, who have bought up all hunting rights. The Floiten glen, in the Zillerthal Alps, is also a huge game preserve.

16. **Ortler, Oetzthal, and Stubai Ranges.**—It may seem strange at first sight to consider these three great ranges together, for the Ortler group rises S. of the main divide of the Alps, which runs over the crest of the two other ranges. No doubt, if we were trying to write a really minute and detailed description of the various Alpine groups, it would be best to speak of these three chains under two or even three heads. But, as in these pages we are merely sketching the outlines of the subject, and not writing special monographs, we have decided to include all three in one group, that, after all, is far less extensive than the Cottians or the Graians, which we have not subdivided. The Stubai Alps are really a great outlier of the Oetzthal range. Taking these together we see that they face, across the Vintschgau, or upper valley of the Adige, the still mightier Ortler range. It is true that between the Stelvio and the Reschen Scheideck there is, so to speak, a solution of continuity, so that the Ortler range is separated from the Oetzthal-Stubai range by a tract of hilly country that forms the most north-easterly portion of the Bernina group (No. 12 above). But, as we explained above, we had for practical reasons to draw an artificial line of distinction between the Central and the Eastern Alps, so as *not* to include in the former the Ortler range, with the highest summit in the Tyrol. That line passed first over the Reschen Scheideck Pass, and then over either the Umbrail or the Stelvio Passes, in order to reach and then follow the course of the Adda down the Valtelline. Hence our present group is limited by those passes on the W., while on the S. the Tonale Pass (6181 ft.) is as much the natural boundary of the Ortler range, as the Brenner Pass (4495 ft.), on the E., is that of the Oetzthal-Stubai range. But, as between themselves, the Ortler range is cut off from its fellow by the upper valley of the

Adige or the Vintschgau. Taken together they constitute by far the most extensive and important snowy region in the Eastern Alps—indeed this would be almost true of the Oetzthal-Stubai half of the group, looked at by itself.

The *Ortler range*, of course, stands forth before any other part of the Eastern Alps by virtue of the fact that in it rises the loftiest summit, the Ortler (12,802 ft.), of the entire Eastern Alps, while the Tauern group (our No. 18) with the Gross Glockner (12,461 ft.), just beats the Oetzthal, with its Wildspitze (12,382 ft.). Yet the Ortler, like so many other peaks in the Alps—including both the summits just mentioned—does not rise on the watershed of its own group, preferring to stand a little way off to the N., so that it is wholly Tyrolese, just as the Dufourspitze is wholly Swiss and Monte Viso is wholly Italian—in each, the point named is situated on what, technically speaking, is but a huge spur or outlier of the main ridge. The Ortler range stretches out four great arms or lateral ridges from its centre, but this centre is not a single peak—it is the high snowy ridge or crest which extends from the Suldenspitze (11,100 ft.), on the N.W., to the lower summit (12,343 ft.) of the Monte Cevedale, on the S.E. From the former peak radiate the two great ridges that enclose the Sulden valley, so well known to travellers, while from the latter branch off those that form the boundaries of the Val Furva (or Santa Caterina valley) and of the Martell valley. There can be no question that in mere point of number of lofty peaks and passes the Ortler range easily surpasses any other in the Eastern Alps. Yet very few passes across it were known before the sixties of the nineteenth century. This is in part due to the great height of all passes over it, but principally to two other facts. One is that all the great glens descending from our range soon join much greater valleys, on which they are dependent in every way, and which are traversed by great routes over ancient and much frequented passes—the Reschen Scheideck, the Stelvio, the Umbrail, and the Tonale, so that there was little necessity for any of these higher glens to communicate with each other. The



THE ORTIER FROM THE MONTE ZERRU

other fact is that while the few valleys on the S. flank of our range are naturally and always have been attached to the Trentino (an Italian-speaking region), all the other glens that radiate from the Ortler range join either the upper Adige (Vintschgau) valley, or the upper Adda (Valtelline) valley—now these two great valleys have for centuries been closely associated politically and historically, first as belonging to the Three Rætian Leagues (or their predecessors in title), and later to the Habsburgers. Hence there did not exist the usual inducements to smuggle or drive an honest trade across the frontier, while if any one did wish to go from one valley to the other, he could, by a slight détour, well worth the extra labour, cross the Umbrail or the Stelvio Passes, without adventuring himself into trackless deserts of snow and ice. Even when in 1859 the Ortler range ceased to be completely Austrian and lost the Valtelline (held since 1814-15—the Trentino having been finally annexed about the same time) and so became half-Italian, the habits acquired of old did not lose their force, and it was reserved for the early Alpine explorers to force passages over the mighty barrier of snow that had so long successfully held back the natives of the surrounding valleys.

We have narrated above (see Chapter IX.) the history of the early attempts on, as well as of the first (1804) and early ascents of, the Ortler itself, which form a most interesting chapter in the history of mountaineering. After Thurwieser's expedition in 1834 the entire district remained unexplored, save by a few map surveyors, and it was not till 1864 that the detailed exploration of the group began. In the very first number (March, 1863) of the *Alpine Journal* there appears the following query, signed by the initials of a famous English climber of the day (Mr. A. W. Moore): 'The Orteler Spitze. Can any mountaineer give an account of this mysterious peak? Has it ever been ascended, except by the mythical Archduke?' The answer was given in the summer of 1864, when an English party climbed the Ortler, thirty years after the last successful ascent, and also made the first authentic ascent of the Königsspitze, the second peak of the district. A few days

later in the same year an Austrian mountaineer reached the lower summit of Monte Cevedale, but was prevented by an icy wind from climbing the higher peak, which was conquered by another Austrian in 1865. From that date onwards the group became a favourite resort of climbers, particularly those of Austrian nationality. Nowadays Sulden is a sort of Tyrolese Zermatt, but is already no longer what Zermatt was in the sixties and early seventies. The other main centres, Trafoi and Santa Caterina, are by comparison but little visited, but the Ortler is so frequented that the Payer Club hut (9908 ft.) is really a little mountain inn with room for about a hundred tourists, (if not more), while it boasts of several waitresses who live there in summer, and also of a daily post from Sulden.

Let us now take a leap across the Vintschgau and land on the outskirts of the *Oetzthal range*. The Oetzthal itself is a very long valley on the N. side of the group, and joins the Inn valley at a point considerably nearer Landeck ($16\frac{3}{4}$ miles) on the Arlberg railway than Innsbruck ($28\frac{1}{2}$ miles). Near its head, some 26 or 27 miles from the Inn valley, the Oetzthal splits into two branches. That to the S.W. leads up to Vent (6211 ft.), the climbing centre of the region, while that to the S.E. gives access to Ober Gurgl (6322 ft.), the highest permanently inhabited village in the Eastern Alps. From the former village the easy glacier pass of the Hochjoch (9465 ft.), and from the latter the similar Niederjoch (so called, though higher, 9899 ft.), lead over into the narrow Schnals valley, the main means of access to the group from the S., as it joins the Adige valley some twelve miles S.W. of Meran. As the Vent region in old days formed part politically of the bailiwick of Kastelbell, in the Adige valley, and not of that of Petersberg, which took in the rest of the Oetz valley, communications over the Hochjoch must have been frequent in former times. The first passage actually recorded was made in 1601, when a local official went over it to visit the scene of the great damage caused the year preceding by the breaking out of a lake, formed by the advance of the Vernagt glacier, a little above Vent. As the highest pastures above Vent (those of Rofen, the refuge of

Frederick with the Empty Pockets in 1415) and Ober Gurgl still belong to men of the Schnals valley, it is clear that both passes have been traversed for generations. From Ober Gurgl another pass, the Gurgler Eisjoch (10,292 ft.), communicates with the deep-sunk Pfossen valley, the last farm in which, the Eishof (6811 ft.), is stated to be the highest in the Eastern Alps. Further, from the point at which the Vent and Ober Gurgl glens split off, the track over the Timmeljoch (8232 ft.) not merely serves to mark off the main Oetzthal range from that of Stubai, but leads to the Passeier valley, famous as the former home (at or near its chief village, St. Leonhard) both of Andreas Hofer, the hero of the patriotic resistance to the French in 1809, and shot by Napoleon at Mantua in 1810, as well as of Josef Pichler, the brave man who first successfully stormed the Ortler in 1804.

It has been said, rather cruelly, that the glaciers in the Oetzthal region are too big for the peaks that they surround. However that may be, the two longest glaciers of the district, those of Gepatsch ($6\frac{1}{4}$ miles) and of Hintereis (6 miles), are only just beaten by the Pasterze (rather over $6\frac{1}{4}$ miles) in the Glockner region. But it is true that many of the chief summits of the Oetzthal range, though sometimes elegant in form, give one the general impression of having been rounded and pressed down by Nature, so that, despite their height, they do not strike the spectator as much as might be expected. Of course there are exceptions to this, as to any general statements regarding an Alpine region. Of the two highest peaks of our region, the Weisskugel (12,291 ft.) rises on the main watershed of the Alps, and was climbed by two Schnalsenthal peasants as far back as 1846. This is a very recent discovery, as the first ascent is generally placed in 1861, the real date of the ascent of the highest point of the Wildspitze (12,382 ft.)—its second peak 16 ft. lower, was reached in 1848—which, though the monarch of the region, rises on a spur far N. of the main watershed. Most of the peaks of the Oetzthal range are comparatively easy of access, and were attained in the first half of the nineteenth century.

The one considerable valley in the *Stubai wing* of the Oetzthal range is very properly that of Stubai, which opens on the N.E. slope of the group, is nearly as long as that of Oetz, and, like it, splits, near its head, into several side glens. But the main valley joins the Brenner route about six miles S. of Innsbruck, whereas the Oetz valley unites with the Inn valley some $28\frac{1}{2}$ miles W. of that famous town. Its loftiest point, the Zuckerhütl, is but 11,520 ft. in height, so that the Stubai wing cannot compare in this respect with the Ortler or the Oetzthal ranges, while it was ascended only in 1863, the district indeed coming into prominence among mountain explorers at a comparatively late date, though Thurwieser was up the Fernerkogel (10,827 ft.) and the Habicht (10,758 ft.) as early as 1836. The Zuckerhütl (the name being translated means 'Sugar cone') stands some way to the N. of the main watershed, while it is also a little W. of the spot (occupied by the Wilder Pfaff, 11,388 ft.), at which the Stubai group branches off in three arms or ridges. Two of these enclose the head of the Stubai valley. The second and the third close that of Ridnaun, to the S.E., and surround the most extensive glacier of the group, that of Uebelthal ($3\frac{1}{2}$ miles long). Now this glacier enjoys the proud pre-eminence (probably not to be equalled in the Alps) of possessing no fewer than four Club huts, one of these (a small inn) being at the relatively enormous height of 10,411 ft. It is stated on apparently good evidence that while the average height of the main Stubai ridge is higher than anywhere else in the Eastern Alps save in the Ortler group, the average steepness of the mountain slopes is quite unsurpassed in this extensive region, while it is wealthy in the point of Club huts, and in its entire length from N. to S. not a single non-glacier pass crosses the main ridge—surely features that suffice to distinguish what is by no means a group of first-class importance.

17. **Lombard Alps.**—We borrow this name from Mr. Ball, as it describes with tolerable accuracy the group that now comes before us. This extends from the head of the Lake of Como to Trent, including all the ranges that stretch S.

of the Valtelline, and of a line drawn across the Aprica (3875 ft.) and Tonale Passes (6181 ft.). It is thus clearly marked off from other groups, the two passes named separating it from the Ortler group on the N. Our group is entirely Italian-speaking, while its W. slope is (since 1859, when Austria lost the Bergamasca to Italy) wholly Italian, though its E. slope forms part of the Trentino, or domains of the Bishop of Trent, which, secularised in 1803, finally passed into the possession of Austria in 1814. This slope, therefore, forms part of 'Italia irredenta.' Of course the entire group is far S. of the main watershed of the Alps, which runs through part of our Group 16. But the political frontier is rather oddly drawn across the actual watershed of our present group, so that the three loftiest summits included in it rise some way off this frontier—the Presanella (11,694 ft.) and the Carè Alto (11,369 ft.) to the E., and therefore wholly in Austria, while the Adamello stands rather to the W., and so is wholly Italian.

Like many other of our groups, the present is composed of a central mass and of two wings. But rarely can it happen that the wings are in such striking and extraordinary contrast to their topographical centre.

That centre is composed of vast snow-fields, separated by low ridges, and rising at their outer edge into various small summits not very much raised above the general level—at least on the Austrian side, for the Italian side is far steeper. This great crumpled table-cloth of snow culminates in the Adamello (11,661 ft.), and falls to the N.E. in the extensive Mandron glacier that closes the head of a very long, finely forested glen, the Val di Genova (famous for its waterfalls), which is watered by the Sarca torrent. This stream, having from its source flowed eastwards, turns S. near Pinzolo (the tourist centre of the region), and again E. at Tione before it takes another S. bend at Alle Sarche and soon enters the Lake of Garda after a zigzag course. Now the central Adamello mass throws out to the S.E. a spur that rises in the Carè Alto (11,369 ft.), while to the N.E., after a considerable fall, it rises once more to form first the fine rock peak of the Busazza (10,922 ft.), and then the

snowy Presanella (11,694 ft.), the most striking, as well as the loftiest, peak of the region.

E. of the Presanella the range falls to the low pass leading from Pinzolo to Dimaro in the Val di Sole, on which stands the sanctuary and great hotel of Campiglio. To the E. of a line drawn from Campiglio to Tione rise the *Brenta Dolomites*, our first real Dolomite range, which attains the height of 10,420 ft. in the Cima Tosa, and 11,352 ft. in the Cima di Brenta, and which divides the Sarca valley (from Pinzolo to Tione) from the Adige valley between Mezzo Lombardo (where the Noce stream from the Tonale Pass falls in) and Trent. There is not very much snow in the Brenta Dolomites, but the splintered rock pinnacles are amazing in shape (some are actually named by the natives themselves the 'Fulmini,' that is, thunderbolts), while the great gateway of the Bocca di Brenta (8376 ft.), pierced between the two highest summits of the range, is often the first revelation of Dolomite fascinations to the traveller. On the Pinzolo side of the pass the Crozzon di Brenta (10,247 ft.) is a most imposing rock summit, while on the other slope the wanderer descends to the idyllic Lake of Molveno. The exploration of this most singular and remarkable range has been largely carried out by English travellers since Mr. Ball crossed the Bocca di Brenta in 1864; in 1865 the Cima Tosa fell to him, and in 1871 the Cima di Brenta to another English party, but the Crozzon was not overcome till 1884, and then by a German climber.

The central mass of the Adamello was mainly first explored, from 1864 to 1868, by an Austrian climber, Herr Payer, later of Arctic fame. In 1864 he climbed the Adamello, three weeks after an English party had vanquished the Presanella, while another English party captured the Carè Alto in 1865, though the Busazza held out till conquered by two German travellers in 1889. A notable feature of the central Adamello mass is the number of wild and uninhabited (save by herdsmen in summer) glens that descend from it, like the spokes of half a wheel, to the S. (to the Chiese, that empties itself in the Lake of Garda), as well as to the W. and N.W. (in these

cases the torrents sooner or later swell the Oglio in the Val Camonica).

To the W. of the central Adamello mass, and separated from it by the carriage road over the Aprica Pass (3875 ft.), stretches the range that forms the W. wing of our group—the *Bergamasque Alps*. Short steep glens descend on the N. slope to the Valtelline, while on the S. slope two considerable valleys descend from the highest crest towards Bergamo, the natural capital of the district—the Val Brembana and the Val Seriana. These are flanked on the W. by the Val Sassina and the Val Varrone, which pour their waters into the Lake of Como, while far to the E. of the two main valleys of the Bergamasque Alps is the Val di Scalve, a tributary of the Val Camonica or Oglio valley, that lower down forms the Lake of Iseo. The lower portion of the Val di Scalve is the most remarkable bit of all the Bergamasque valleys, for the imposing rock gorge carved out by the Dezzo torrent is now traversed by a very picturesque carriage road, so that this defile has been called the 'Via Mala Bergamasca.' Of the two main valleys the Val Seriana is the wilder and more Alpine, while the scenery of the Val Brembana is throughout extremely varied and picturesque.

The easiest and most frequented pass across our range from Bergamo to the Valtelline is that of San Marco (6513 ft.), reached through a side glen of the Val Brembana and traversed by a mule path. A little below the pass, on the S. side, is a very ancient inn, that formerly displayed the golden-winged lion, as a sign that one was here on the Venetian territory, to which our region belonged from 1428 to 1797, becoming Austrian in 1815, and in 1859 Italian. This sign and inn are mentioned by the quaint early English traveller, Thomas Coryat (c. 1577-1617), familiarly known as the 'Odcombian Legstretcher,' who in 1608 made a pedestrian journey through Europe, in the course of which he crossed the Alps twice and traversed our Pass of San Marco. His object was to go from the Venetian Bergamo to the Rætian Valtelline, while avoiding the Spanish Milanese. The highest summit of the Bergamasque Alps is the Pizzo di Coca (10,014 ft.), but the

Pizzo di Scais (9974 ft.), the Monte Redorta (9964 ft.), the Monte Gleno (9459 ft.), and the Presolana (8239 ft.) are better known to the few travellers who have as yet explored the higher portions of our range. Far more famous are the peaks, celebrated as splendid belvederes, of the Monte Legnone (8563 ft.) and of the Grigna (7907 ft.), both at the W. edge of the region, and not far from the E. shore of the Lake of Como.

There are a few small glaciers in the Bergamasque Alps, high up on its N. slope, but the Brenta district is richer in this respect. The central Adamello mass far surpasses both, though the Nardis glacier (flowing from the Presanella towards Pinzolo) cannot rival in size the wide-spreading Mandron glacier, that sweeps down on the N.E. slope of the Adamello. Let us note, in taking leave of our district, that in all parts of it the term 'vedretta' is used for a glacier, thus showing that we are within the sphere of influence of the Grisons and of the Eastern Alps.

18. Central Tyrolese Alps.—Let us admit at once that this name, like that of 'Bernese Alps,' is inaccurate. The whole of our present group is Austrian, just as the whole of the Bernese Alps is Swiss. But the 'Bernese Alps,' in the sense in which we used that title in Section 8 above, belong to several cantons other than that of Berne. Similarly our 'Central Tyrolese Alps' are by no means wholly in the Tyrol. The W. portion, comprising the Zillertal Alps, is, indeed, Tyrolese on both its slopes. But in the Tauern Alps the entire N. slope is in the province of Salzburg, while the S. slope is, as regards its more westerly portion, in Tyrol, though its S.E. extremity (Gross Glockner region) is in Carinthia. Strictly speaking, our group is thus only partially Tyrolese, as the 'Bernese Alps' are only partially Bernese. The name 'Tyrol' is, however, used commonly, if inexactly, as more or less equivalent to 'Eastern Alps,' and no doubt most of the 'Eastern Alps' are really situated within the Tyrol. Now, as pointed out above (Chapters I. and VII.), the main watershed of the Alps is formed by our group (as the continuation of Group 16) as far as the Dreiherrnspitze (11,500 ft.)

in the Venediger region. There the main watershed of the Alps bends S. towards the Hadriatic (separating the Po basin from the Danube basin), while the real backbone of the Alpine chain runs eastwards, though serving as a water-parting of two tributaries of the Danube. Many geographers prefer, therefore, to regard the Tauern Alps as the true continuation of the Alps, putting aside all consideration of watersheds, though hitherto those have played a great part in the delimitation of the Alps. Now, if we accept the 'backbone' theory, nothing is more natural than to speak of the 'Central Tyrolese Alps,' for it is undoubtedly the highest and most conspicuous mountain range in the Eastern Alps, and 'Tyrol' is all but synonymous with the 'Eastern Alps.' The N. limit of our group is formed by the Enns valley and the Pinzgau, while to the S. it is bounded by the Pusterthal and the upper Drave valley.

The W. half of our group consists of the *Zillerthal range*, and extends eastwards from the Brenner Pass to the Krimmler Tauern Pass, that divides it from the Gross Venediger section of the Tauern Alps. It takes its name, of course, from the Zillerthal (so called from its chief village, Zell) that opens on its N. slope and joins the Inn valley not far from Brixlegg, about twenty-seven miles N.E. of Innsbruck. From the point of view of physical geography it is made up of the union of a considerable number of glens, which, studied on a map, have the air of having been neatly marked out by a ruler, each descending from the main ridge in the same N.W. direction, though increasing in size as one advances eastwards. These glens are steep, and narrow, though the average inclination of the slopes of the main ridge are not (as is generally believed) steeper than is the case in the Stubai group, while the glaciers flowing from it are unusually crevassed. Naturally, owing to the musical talents of the Zillerthal folk, this valley is regarded as Tyrolese of the Tyrolese, though as a matter of history part of this valley was only secured to Tyrol from Bavaria (in the old sense) in 1505, while the stretch of the Zillerthal that had belonged to the Prince-archbishop of Salzburg became an integral portion of the Tyrol as lately as

1815. On the very crest of the main ridge of the Zillerthal Alps rise its highest summits that show an odd tendency to decrease in height from W. to E.—the Hochfeiler (11,559 ft.), the Mösele (11,438 ft.), the Thurnerkamp (11,228 ft.), and the Gross Löffler (11,096 ft.). The exploration of the higher regions of these Alps began early, for the Gr. Löffler fell in 1843, while in 1846 old Thurwieser conquered the Gr. Mörchner (10,785 ft.). In 1865 an English party took the Mösele, till then supposed to surpass the Hochfeiler, but an Austrian climber five weeks later captured the Hochfeiler, while in 1872 another English party won the Thurnerkamp.

To the N.W. of the main Zillerthal range is the *Tuxer chain*, that culminates in the Olperer (11,418 ft.), the Fusstein (11,090 ft.), and the Schrammacher (11,208 ft.), the first climbed by an Austrian in 1867, the second by an Englishman in 1880, and the third by Thurwieser in 1847.

To the S.E. of the main Zillerthal group is the semi-independent *Rieserferner range*, noteworthy for the relative difficulty of its rocky summits (of which the loftiest is the Hochgall, 11,287 ft., and over it runs the main watershed of the Alps), the high average height of the principal ridge, and the number of inhabited glens that press up into it and so facilitate access to its peaks and glaciers.

It is a singular fact, which perhaps has not been clearly accounted for, that from the Brenner to the Radstädter Tauern—in other words, from one end of our range to the other—there are no carriage roads across the chief ridge, these only existing over the two passes just named, while the railway tunnel beneath the Hohe Tauern has just been pierced. It is said, indeed, that in this long range of eighty-five miles but a single pass, that of the Velber Tauern (8334 ft.), is passable for beasts of burden. Note that the numerous passes called ‘Tauern,’ as well as others, are snowless.

The *Tauern group*, comprised between the Krimmler Tauern (8642 ft.) and the Radstädter Tauern (5702 ft.), is divided by nature into three masses, that of the Gross Venediger being separated from that of the Gross Glockner by the Velber

Tauern Pass, while the last-named group is marked off from the Hochalm Spitze or Ankogel group by the Hochthor or Heiligenbluter Tauern Pass (8442 ft.).

In the *Venediger group* the principal summits are the Gross Venediger itself (12,008 ft.), probably so named as it bordered on the county of Görz (inherited by the Habsburgers in 1500) that occupied a part of the territory formerly held by the ancient Veneti (though never by Venice), and the Dreiherrnspitze (11,500 ft.), so called as on it met in old days the frontiers of the Tyrol, of Salzburg, and of Görz. Both peaks stand on the main divide, while it is from the second that the main watershed of the Alps bends S., and parts company with what some writers consider the true backbone of the Alps. The Venediger group is the part of the Tauern range that can boast of the greatest extent of perpetual snow and of the Krimml waterfalls (the finest in the Eastern Alps), while it is said that the average elevation of the main ridge is slightly greater than that of the Glockner group. The Dreiherrnspitze was not climbed till 1866, while above (Chapter IX.) we narrated the conquest of the Gross Venediger in 1841, after an unfortunate failure in 1828.

The link between the Venediger and the Glockner groups is the mass that is crowned by the Sonnblick (10,128 ft.), which rises between the Velber Tauern, on the W., and the Kalser Tauern (8242 ft.), on the E., but must be carefully distinguished from the more famous summit of the same name in the third of our Tauern groups.

If the Venediger group has more extensive snow-fields than any other portion of the Tauern, the longest glacier (the Pasterze, rather over six and a quarter miles), as well as the highest summit, in the entire Tauern range, the Gross Glockner (12,461 ft.), are both comprised in the *Glockner group*. The Glockner takes its name from its bell-like shape, while its conquest in 1799-1800 forms one of the earliest chapters in the history of mountaineering, and all but the earliest in that of the Eastern Alps. Its more difficult neighbour, the Glocknerwand (12,209 ft.), did not allow the loftiest of its seven rock teeth to be scaled till

1872, though the third highest summit of the region, the Gross Wiesbachhorn (11,713 ft.), was attained by some peasants at some date previous to 1799. In curious contradistinction to the regularity observed in the case of the higher peaks of the Venediger and Zillertal groups, these three great summits of the Glockner all rise some way off the main ridge (now the local watershed, no longer the main watershed of the Alps)—the two higher to its S., and the third to its N.—the fourth peak of the region, the Johannisberg (11,375 ft.), being the loftiest point on the watershed. Heiligenblut is the chief starting-point for the ascent of the Gross Glockner. It is the highest village (4196 ft.) in Carinthia, and takes its name from a flask of our Lord's Blood, brought from Constantinople by St. Brice, and now preserved, enclosed in a fine reliquary, in the fifteenth century village church that boasts also of a graceful spire and of a delicately and elaborately carved wooden high-altar. To the S. of the Glockner group rises the comparatively small mountain mass (provided, however, with glaciers) which bears the name of its best-known summit, the Hochschobler (10,663 ft.), though the Gross Rother Knopf is 151 ft. higher.

Beyond the Hochthor or Heiligenbluter Tauern Pass the range gradually sinks towards the Radstädter Tauern, forming on the way two surprisingly extensive snowy groups. One of these is that which culminates in the Hochnarr, more accurately written Hocharn (10,689 ft.), though its best-known summit is the true Sonnblick (10,191 ft.), on the top of which was built in 1886 a Meteorological Observatory that boasts of being the loftiest in the Alps. To the N. of this group stretches the Rauris valley (in the province of Salzburg), celebrated for its gold-mines (the chief at the hamlet of Kolm-Saigurn, 5414 ft., now belong to an English company), which have given the name of 'Goldberg' to the principal glacier at its head, while the remains of the old workings are still accessible by paths that are convenient for travellers. The highest miners' dwelling is situated on a rock that just rises above the level of the Goldberg glacier, and is at a height of 7681 ft. The numerous glacier passes (all easy) across this group are accounted for by

the fact that many of the miners come from Carinthia on the S., and return home for the Sunday in summer and even in winter, so that these passes are well known and quite frequented.

In the other group E. of the Glockner mass the main valley is that of Gastein, so well known since the fifteenth century for its hot mineral springs. At its head it splits into two branches, whence the Mallnitz or Nassfeld Tauern Pass (7920 ft.) and the Hohe or Korn Tauern Pass (8081 ft., beneath which the great Tauern tunnel, five and a quarter miles in length, has just been pierced) lead over to the Möll valley, a tributary of that of the Drave. Just E. of the Hohe Tauern Pass we come to the most easterly snow-covered range in the Alps, that which is crowned by the Hochalmspitze (11,008 ft.) and the Ankogel (10,673 ft.), a spur of which thrown out towards the E. bears the Hafnereck (10,043 ft.), the last of the snowy peaks of the Alps. The Ankogel was ascended as far back as about 1762 (the first traveller was old Thurwieser in 1822) and the Hafnereck in 1825, but the final rock summit of the Hochalmspitze was not attained till 1859.

Some way N.E. of the Hafnereck is the Radstädter Tauern Pass (5702 ft.), which we have selected as the most easterly limit of the Alps in general, and so, of course, of the Eastern Alps. On its summit is a chapel and a churchyard for the reception of the remains of travellers who have lost their lives in these wilds, especially in winter. The oldest tomb is that of Wolfgang Wiesenegger, who died in 1582, after having kept the Tauern inn, twenty minutes below the pass on the N. side, for twenty-five years. His family continued to keep the inn for two hundred and thirty years, but sold it in 1818. It is said to be mentioned as early as 1526, while the date 1562 is still carved on its front. The pass itself was certainly known to the Romans, for it is mentioned under the name of 'in alpe' in the fourth century 'Peutinger Table,' while Roman milestones have been found near it.

19. The Dolomites of the South Tyrol.—The present writer was somewhat taken aback a short time ago by the perusal of a

letter of a valued correspondent relating to the Dolomites. It was therein maintained, first, that the Dolomites did not form part of the Alps, and next, that there were no Dolomites save in the neighbourhood of Cortina. Fortunately the answer to both statements was easy. No reply could possibly be given to the retort that if the Dolomites were not in the Alps, one would like to know where they were situated, for while they certainly are not comprised in the Carpathians, or in the Apennines, or in the Jura, or in the Pyrenees, yet admittedly they are in the Tyrol, which is commonly supposed to be included in the Alps. Next, the present writer felt quite certain, in consequence of his hasty journey through the district in 1876, that there were Dolomites elsewhere than at Cortina, and investigation showed this to be the case. Outside Cortina, there are Dolomites around the Grödnertal, in the Rosengarten group, near Primiero and San Martino di Castrozza, and even to the E. of Cortina, in the Sexten valley. No doubt Cortina is the spot visited most by ordinary travellers in the region, for it lies on the great high-road by the Ampezzo Pass (5066 ft.) from Venice to Innsbruck; but there are other and better climbing centres in the Dolomites, and it is dimly whispered that some visitors are not so fascinated by Cortina as is the case with the majority.

As a matter of fact, the Dolomites form a series of semi-detached groups and ranges, comprised between the Brenner railway, on the W., and the route from Innichen over the Monte Croce Pass (5374 ft.) and down the Piave valley to Belluno, on the E., while the Pusterthal naturally marks off our region from that which we have called the 'Central Tyrolese Alps.' The Dolomite region thus forms a sort of irregular square oblong.

The name of 'Dolomite' signifies, as is generally known, a peculiar formation of limestone rocks, due to the chemical union of carbonate of lime and carbonate of magnesia, the former slightly predominating, so that Dolomite may be shortly described as 'magnesian limestone.' It takes its name from a French geologist, who first visited them about 1789, Déodat de Gratet, Marquis de Dolomieu (1750-1801), a village N.W. of Grenoble in the Dauphiné (see Section 3). He alludes to this

peculiar kind of rock in a letter dated January 30, 1791. But the name 'Dolomite' does not seem to occur earlier than a pamphlet published in 1802, and relating the journey of Dolomieu with a Danish friend in the environs of the St. Gotthard and the Simplon: it is therein noted that, at the head of the Val Canaria, N.E. of Airolo, at the S. foot of the former pass, '*the Dolomite is very pure.*' There are several other instances of the use of the term in the book, so that it does not seem to have been a novelty in 1802. It is curious that the singular Pizzo Columbè (8363 ft.), one of the most striking Swiss Dolomites, is not very far from the Val Canaria, being situated at the head of the neighbouring glen, on the way from Airolo over to the Lukmanier Pass. Of course there are Dolomites in parts of the Alps other than the South Tyrol E. of the Adige Valley—so in the Dauphiné, and N. of the village of Splügen, and S. of that of Bergün (see Section 13 above), not to omit the marvellous Brenta group, N.W. of Trent (see Section 17). But the Dolomites of South Tyrol cover a much greater amount of ground, while they are generally higher than those found elsewhere, despite the fact that the Piz d'Aela (10,959 ft.) in the Bergün group, just does not surpass the highest Tyrolese Dolomite, the Marmolata (11,024 ft.). But the neighbours of the Piz d'Aela, the Tinzenhorn (10,430 ft.) and Piz Michel (10,378 ft.), are inferior in elevation to many of the great Tyrolese Dolomites, of which not a few are distinguished rather by their singular features than their mere height.

As to the burning question of the origin of Dolomite rock, whether due to coral insects or to volcanic disturbance, it is best to preserve a discreet silence. Let our thoughts rather dwell on the wonderfully sheer rock-walls of the great Dolomite peaks splashed by startlingly brilliant bands of red, yellow, and so on, while crowned by the most fantastical conceivable rock pinnacles. It is hard to exaggerate the strange beauty of the Dolomites, although the glaciers are very small, and the slopes of rolling stones at the foot of each summit do make one long sometimes for green Swiss pastures and clear Alpine torrents. Mountaineers, while liking Dolomite climbs, do not

like the brittle Dolomite rock, so apt to scale off at critical moments.

We may distinguish six main groups in the Tyrolese Dolomites, two being included in either of the divisions, Western, Central, and Eastern Dolomites.

(a) The first rises round the *Gröden valley* (which joins the Eisack valley about fourteen miles N.E. of Botzen), famous as one of the last homes of the quaint old Ladin dialect (resembling that spoken in the Engadine), and as the seat of the manufacture of children's wooden toys (Noah's arks, soldiers, dolls), as well as of 'saints' of the same material. Its capital is St. Ulrich, now a frequented summer-resort. On the N. of this valley rises the Geisler group, of which the highest point is the Sass Rigais (9932 ft.), though the towers to its S.W. more strongly attract the climber, in particular the loftiest (9407 ft.) of them, the Fermeda Tower, which only yielded to the foot of man in 1887. To the S. of the Gröden valley we have the forbidding and massive Langkofel (10,427 ft.), flanked to the S.W. by the very difficult Grohmannspitze (10,207 ft.)—so called in honour of the Austrian who conquered the Langkofel in 1869—and the still more arduous five-pointed Fünffingerspitze (9833 ft.), which, vanquished in 1890 only, soon after became the height of fashion and the Mecca of the straitest sect of Dolomite climbers: the four main routes up it are so short, though extremely difficult, that they have all been taken in one day, the peak being thus twice 'traversed' within a few hours.

(b) To the S.W. is the fantastic and long-drawn-out chain known as the *Rosengarten*, the pale towers of which are so imposing when seen from Botzen, at their W. foot. The home of legends about King Laurin and his rose garden, few mortals ventured to force their way into this enchanted castle, with its numberless towers, turrets, and pinnacles, all of the boldest forms imaginable. The earliest adventurers, all English, had the good fortune to capture the two highest needles, the Kesselkogel (9846 ft.) in 1872, and the Rosengartenspitze (9781 ft.) in 1874. Success led to further doughty deeds, and soon came the familiarity that breeds contempt, and, alas, not infrequently

leads to fatal accidents. In particular the rows of gaunt, sky-scraping, slender rock towers that rise to the N. of the lower of these two summits attracted attention, and won wide popularity among daring scramblers. Of the six Vajolet towers the loftiest (9256 ft.) was overcome in 1881, but its slightly lower neighbours, named, after their first conquerors, the Winkler and the Stabeler Towers, surrendered in 1887 and 1892 only, while the most terrible, though the lowest, of all, the Delago Tower, held out till 1895: its ascent is described by the special guide-book for climbers in this region as 'extremely difficult, the climb borders on the impossible.' Still more to the N., and rather lower, though scarcely less frightful, are the three Grasleiten peaks, of which the central and highest is 8875 ft. high, and was captured by man in 1885.

(c) It is quite a relief to turn from these ghostly and hideously splendid pinnacles (*belles horreurs* is indeed the word to describe them) to our third group (E. of the Rosengarten), that of the *Marmolata* (11,024 ft.), which, out of sheer perversity, being the culminating point of the Dolomites, is notwithstanding a snow peak of easy access, and so was subdued in the almost prehistoric days (for the Dolomites) of 1864. Its neighbour, the Vernel (10,519 ft.), however, is a grand rock summit, and maintains the Dolomite tradition (though it yielded in 1879) in brave fashion, offering smooth slabs of rock wherewith to tempt the climber armed with proper canvas 'climbing shoes,' soled with plaited hemp.

(d) To the S. of the Marmolata group are the 'Peaks of Primiero,' or the *Pala Group*, which, to English readers, recalls the memory of Leslie Stephen, the first foreigner to invade their recesses, and to climb, in 1869, both the Cima di Ball (9131 ft.) and the Cima di Fradusta (9649 ft.). In the present writer's opinion this set of Dolomites, next after the Rosengarten towers, best fulfils the expectations of one who has read about, but for long never set eyes on, any of the famous Dolomites. What sight can be more awe-inspiring and stupendous than the sharp rock needles of the Cima di Vezzana (10,470 ft.) and of the Cimone della Pala (10,453 ft.), soaring high above the dark

forests of Paneveggio? What more startling than the twin paper-knife-like peaks of the Sass Maor (9239 ft.) and of the Cima della Madonna (9026 ft.), which seem to set the laws of gravitation at defiance?—what more startling, indeed, save the fact that both have actually been subdued by puny man? By comparison, the Pala di San Martino (9831 ft.) and the Cima di Canali (9338 ft.) seem coarse and clumsy, though the former is like a mountain castle, and the latter resembles a Gothic church. It is a source of genuine pride that most of these citadels of Nature were first won by English climbers, the Cimone della Pala in 1870, the Vezzana in 1872, the Sass Maor in 1875, and the Cima di Canali in 1879. The Madonna (after all but the lower summit of the Sass Maor) fell to two Austrians in 1886, as had in 1878, to two other Austrians, the Pala di San Martino, which had previously defeated many attempts, and was, to boot, hard to find, owing to the extraordinary vagueness of the maps available in the seventies. Nowadays San Martino di Castrozza is the recognised 'centre' for admirers of the Primiero Dolomites, but the foreground at Primiero, some 2400 ft. lower down, with its contrast between southern vegetation and heaven-kissing Dolomite spires, has charms of its own. Let us recall the curious history of Primiero (noted in Chapter VII.), which has been Tyrolese since 1373, only ten years after the Habsburgers obtained the Tyrol itself.

(e) When we move eastwards across the Cordevole valley (the lower part of which, with Caprile, became Venetian in 1404, and so is now Italian, while the upper part of that valley belonged to the bishopric of Brixen, and so is now Tyrolese), we come first to the wonderful fluted rock-wall of the Monte Civetta (10,564 ft.). This mirrors itself in the limpid greenish-blue waters of the Lago d'Alleghe, through which, it is said, one can still perceive the ruins of the three villages destroyed in 1772 by the great landslip from the W. that then took place. And now at last we reach the edge of the *Cortina Dolomites*, the only ones in the district, according to the friend whose views were quoted in the opening of this section. Our attention is first attracted by the Pelmo (10,397 ft.), midway, like a girdle, round whose



THE PALA DI SAN MARTINO (DOLOMITES) FROM THE ROSETTA

flanks runs that singular half-open gallery by which access is best gained to the top, first attained in 1857 by Mr. John Ball, who thus had the honour of overcoming the first of the great Dolomite peaks of so terrible reputation. Rather to the N. of the Pelmo rises the Croda da Lago, a peak which is singular in that its higher summit (8911 ft.) is easily attained, while its lower peak (23 ft. inferior) is one of the 'crack' difficult Dolomite climbs. Still more to the N., across the broad opening of the Falzarego Pass (6946 ft.), stands the long ridge of the Tofana, with its three summits of nearly equal height, the central (10,633 ft.) being the loftiest, and surpassed in the region by the Marmolata and by the Antelao only. But the Tofana is disappointing as a Dolomite, save from the Travenanzes glen on its W. side.

Let us now take a flying leap across the Ampezzo or Boite valley to the range that limits it on the E., not overlooking the curious history of Cortina (see Chapter VII.), that has been permanently Tyrolese since 1517, when Maximilian wrested it from Venice which had held it since 1420, so that the Italian (formerly Venetian) frontier is now drawn a very few miles below Cortina and above San Vito, these two villages being not quite seven miles from one another.

Most to the N., and indeed just N.W. of the highest point of the Ampezzo Pass (5066 ft.), is the Hohe Gaisl or Croda Rossa (10,329 ft.), but far less known than its twin neighbours on the S. side of the same pass, the Monte Cristallo (10,496 ft.) and the Piz Popena (10,312 ft.)—the former is a favourite climb from Cortina, while the latter, more forbidding in aspect, is hardly more difficult, though much less visited. Another jump, this time over the depression of the Tre Croci Pass (5932 ft.), we come to the last of the great Cortina Dolomites, a magnificent trio indeed—the Sorapiss (10,594 ft.) and the Antelao (10,706 ft.), two of the three loftiest summits of the region, and vying with each other in savage grandeur, and the Marmarole (9715 ft.), a long, jagged ridge. These three peaks are particularly interesting in an unusual way, for at their S.E. foot is the picturesque little town

of Cadore, perched above the junction of the Piave with the Boite, as well as of the routes from the Ampezzo Pass and the Monte Croce, and world-famous as the birthplace in 1477 of one of the greatest masters of colour who has ever existed, Tiziano Vecellio, best known as Titian (d. 1576): his Christian name comes from a seventh century Bishop of Oderzo (N. of Venice and N.E. of Treviso), in the patriarchate of Aquileia. Now Titian is said to have reproduced in certain of his pictures the peaks which surrounded his mountain home.

Such are the Cortina or Ampezzo Dolomites, the best known, though not the only Dolomites, and in the opinion of some, by no means the most characteristic or most wonderful of the Dolomites. They fell early, being situated conveniently near a great international route. Mr. Ball, as we have noted, took the Pelmo in 1857; then came an energetic Austrian climber, Herr P. Grohmann, who in 1863 captured both the Antelao and the Tofana, in 1864 the Sorapiss, and in 1865 the Monte Cristallo. In 1867 an Englishman scaled the Monte Civetta, in 1870 another overcame the Hohe Gaisl and the Piz Popena, and in 1872 two other Englishmen the E. but lower point of the Marmarole. But Austrians secured both peaks of the Croda da Lago in 1878 (the higher) and 1884 (the lower), as well as in 1890 the W. and highest point of the Marmarole. English successes in the Dolomites are thus curiously less brilliant and numerous in the Cortina region than elsewhere, though Cortina is now so frequented by English.

(f) Our sixth group of Dolomites rises to the N. of the cross-road from Auronzo past the lovely Misurina lake to Schludersbach, and between the high-roads over the Ampezzo and the Monte Croce Passes. They take their name from the *Sexten valley*, on the N. slope of the Monte Croce Pass, as most of them arise round its head. A conspicuous exception, however, is formed by the most famous of all the peaks of this group, the celebrated Drei Zinnen (9853 ft. is the height of the central and highest point), once so dreaded, and still really difficult rock climbs, though it is whispered that the local guides are now quite expert in hoisting human 'sacks of potatoes' up each, and

indeed up all three in a day. The chief peak was overcome in 1869, but the W. summit (9758 ft.), far more difficult, held out till 1879, while the *enfant terrible* of the party, the Kleine or E. Zinne (9452 ft.), did not feel the foot of man till 1881, its conquest marking a turning-point in Alpine climbing, as the impossible was moved one step farther away from human effort and daring. But the true Sexten Dolomites, less popular than the Three Teeth, are the grand rock towers of the Dreischusterspitze (10,375 ft.), the Zwölferkofel (10,142 ft.), and the Elferkofel (10,220 ft.), which keep guard round the secluded Fischleinglen, above the village of Sexten or St. Veit. They surrendered to man in 1869, 1874, and 1878 respectively, the chief stormer, here as in the case of the Drei Zinnen, being Michael Innerkofler, a brave and adventurous guide of Sexten, whose glorious career was brought to a sad end in 1888 by an accident on the Monte Cristallo, when he had attained the age of but little over forty years.

20. South-Eastern Alps.—It is a great fall, in every way, from the Dolomites to the last of our twenty groups. This includes three separate mountain masses, all situated to the E. of the Monte Croce Pass (5374 ft.) and S. of the Drave valley. Towards the E. they melt into the foot-hills extending towards the plains of Hungary, so that, to include in the 'Alps' all snow ranges of Central Europe, we have (as pointed out in Chapter 1.) to make a great sweep eastwards from Villach past Klagenfurt to Marburg, and then another sweep in the opposite direction past Cilli and Laibach to Trieste. The entire region is apparently quite arbitrarily divided from a political point of view. So far as regards its W. portion (the Carnic Alps) the N. slope is Austrian, in Carinthia, while the S. slope is now Italian, since Venice in 1866 became Italian, for this district (known as Friuli) was Venetian from about 1420 onwards till it became Austrian in 1797. The main watershed of the Alps and the political frontier are identical from the Monte Croce Pass till near the Predil Pass, that is N.E. of the Monte Canin in the Julic Alps. Here they separate for the last time, the political

frontier bearing S. to reach the shores of the Hadriatic a little W. of Aquileia, while the main watershed keeps E. Thus the Julic Alps and the Karawankas Alps are both wholly Austrian, save the S. and W. slopes of the most westerly bit of the former, which, since 1866, are Italian. In the Julic Alps the E. slope of Monte Canin and the W. or S. slope of the Terglou and the Manhart are in the county of Görz, the E. and N. slope respectively of the two peaks last named being in Carniola. On the other hand, the Karawankas Alps rise on the ridge separating Carniola from Carinthia, though the E. slope of Grintouc is claimed by Styria. In point of language our group displays a similar diversity. The Austrian portions are all but wholly Slavonic-speaking, and it is said that unlucky travellers who find their way thither encounter considerable difficulties, if unacquainted with that tongue, as the inhabitants are strongly prejudiced against those who speak German. In the Italian portion, in Friuli, a rough form of the Ladin language (which we have already met in the Engadine and in the Gröden valley), is spoken, though there are a number of German-speaking villages, such as Sappada, Sauris, and Timau, of which we have spoken in Chapter VI. above.

Thus, in our group, the historical and linguistic interest is greater than that excited by its beauties from a picturesque point of view, though these are not wholly wanting (in a semi-Alpine form), according to the comparatively rare non-Austrian travellers who have explored it.

Let us now briefly indicate the limits and relations of the three mountain masses that are generally included under the rather colourless name of the 'South-Eastern Alps.'

A. The *Carnic Alps* start on the W. from the Monte Croce Pass, leading from Innichen to Belluno, and are most conveniently limited on the E. by the railway that crosses the Pontebba or Saifnitz Pass (2615 ft.) from Villach past Tarvis and down the Fella or Ferro valley to that of the Tagliamento, and Udine, and so either to Trieste (S.E.), or to Venice (S.W.). The historical fortunes of the Pontebba Pass, as well as of those

of the Plöcken Pass or Monte Croce (4462 ft.), leading from Lienz by Tolmezzo to Udine—distinguish it carefully from the higher Monte Croce Pass that forms the limit between the Dolomites and the South-Eastern Alps—have been traced in Chapter VIII.

This range, as stated above, forms both a physical and a political frontier, and on its actual crest rise the twin peaks of the Monte Coglians (9128 ft.) and the Kellerwand (9105 ft.), the relative height of which was long disputed—the former was first attained in 1865, while the lower or W. summit of the latter was visited in 1868, though the higher or E. summit remained virgin till 1878. The Monte Peralba or Hochweisstein (8829 ft.), the third peak of the range, rises a little S. of the watershed, and so is wholly Italian, while it was ascended as far back as 1854 by one of the Austrian map surveyors.

B. The *Julic Alps* form the natural continuation of the Carnic Alps, though bending S.E., and so abandoning the W. and E. direction of that chain. They thus start from the Pontebba Pass, on the W., and are limited to the N. by the upper Save valley as far as Laibach, this valley dividing them from the Karawankas. They include another famous historical pass, that of the Predil (see Chapter VIII.), which, however, has always been overshadowed by its neighbour, the Pontebba. Near that pass, and N.E. of the Monte Canin (8471 ft.), which stands on the main watershed, this leaves the political (very conventional) frontier, and rises in the Manhart (8786 ft.), before culminating in the Terglou or Triglav (9400 ft.), the monarch of the South-Eastern Alps, first attained in 1778. Rather to the S.E. of the Terglou is the new Wochein tunnel (four miles in length), which, taken in combination with those beneath the Pyhrn Pass and the Hohe Tauern Pass, and through the Karawankas, affords a new and direct route from Vienna to Trieste. S. of the railway from Tarvis to Pontebba, and so enclosed between the routes over the Pontebba and the Predil Passes, rises the half-Italian group crowned by the Jóf del Montasio or Montasch (9039 ft.), first climbed in 1877. At the extreme S.E. border of the *Julic*

Alps is the ancient way from Laibach to Görz and Trieste over the great wooded Carniolan limestone plateau (called the *Birnbauer Wald*), the road attaining a height of 2897 ft., though this route is not a 'pass' in the sense in which we have used that word in these pages.

C. The *Karawankas Alps* rise between the upper Save valley and the reach of the Drave valley stretching from Villach to Marburg. The chief pass that traverses them, the Loibl Pass (4495 ft.), has not had so great historical importance as those we have mentioned above: the new Karawankas tunnel (nearly five miles) is a little to its W. Its peaks are of no great height, and being easily accessible, have, properly speaking, no 'Alpine history.' The chief are the Grintouc (8429 ft.), the Stou (7346 ft.), and the Velka Kappa (5059 ft.).

APPENDIX I

LIST OF THE PRINCIPAL PEAKS AND PASSES IN THE ALPS

N.B.—In each of the twenty groups into which we have divided the Alps the Peaks and Passes are arranged separately in order of height, the figures given being the elevation in English feet above the level of the sea, and taken from the most authoritative maps or other sources, while over or beneath those marked by a † runs a railway line. The Passes marked by an asterisk are traversed by carriage roads.

A.—THE WESTERN ALPS (from the Col de Tenda to the Simplon).

(1) **Maritime Alps** (from the Col de Tenda to the Col de l'Argentière).

<i>Peaks.</i>		<i>Passes.</i>	
Punta dell' Argentera, . . .	10,794	Passo del Pagarin, . . .	9236
Monte Stella, . . .	10,696	Bassa di Druos, . . .	8629
Cima dei Gelas, . . .	10,286	Col della Ciriègia, . . .	8370
Cima di Nasta, . . .	10,197	Col des Granges Communes, . . .	8242
Monte Matto, . . .	10,128	Col delle Finestre, . . .	8107
Cima della Maledia, . . .	10,033	*Col de la Cayolle, . . .	7717
Mont Pelat, . . .	10,017	*Col d'Allos or de Valge- laye, . . .	7382
Mont Clapier, . . .	9994	*Col de l'Argentière, . . .	6545
Mont Tinibras, . . .	9948	*†Col de Tenda, . . .	6145
Mont Enchastraye, . . .	9695		
Monte Bego, . . .	9426		
Mont Monnier, . . .	9246		
Rocca dell' Abisso, . . .	9039		
Aiguille de Pélen, . . .	8809		

(2) **Cottian Alps** (from the Col de l'Argentière to the Mont Cenis, and E. of the Col du Galibier).

<i>Peaks.</i>		<i>Passes.</i>	
Monte Viso, . . .	12,609	Col Sommeiller, . . .	9718
Aiguille de Scolette, . . .	11,500	Col de la Traversette, . . .	9679
Aiguille de Chambeyron, . . .	11,155	Col d'Ambin, . . .	9364
Grand Rubren, . . .	11,142	Col d'Etache, . . .	9144

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Cottian Alps—continued.

<i>Peaks.</i>		<i>Passes.</i>	
Brec de Chambeyron, . . .	11,116	Col de l'Agnel, . . .	9003
Rognosa d'Etache, . . .	11,106	Col Girardin, . . .	8855
Dents d'Ambin, . . .	11,096	Col de Longet, . . .	8767
Roche d'Ambin, . . .	11,080	*Col du Galibier, . . .	8721
Point de la Font Sancte, . . .	11,057	Col de Maurin, . . .	8708
Visolotto, . . .	11,001	Col de la Roue, . . .	8419
Rochebrune, . . .	10,906	†Col de Fréjus, . . .	8294
Punta Sommeiller, . . .	10,896	Col de Clapier, . . .	8173
Monte Ciusalet, . . .	10,870	*Col d'Izouard, . . .	7835
Bric Froid, . . .	10,860	Col de la Croix, . . .	7576
Grand Glayza, . . .	10,781	*Col de Vars, . . .	6939
Rognosa di Sestrières, . . .	10,758	*Mont Cenis, . . .	6893
Pointe des Henvières, . . .	10,739	*Col de Sestrières, . . .	6631
Punta Gastaldi, . . .	10,726	*Col de l'Argentière, . . .	6545
Panestrel, . . .	10,673	*Mont Genève, . . .	6083
Roche du Grand Galibier, . . .	10,637	Col des Echelles de Plan-	
Aiguille de Jean Rostan, . . .	10,617	pinet, . . .	5774
Péou Roc, . . .	10,601		
Rocca Bernauda, . . .	10,594		
Pic du Pelvat, . . .	10,558		
Pointe Haute de Mary, . . .	10,539		
Pic du Thabor, . . .	10,516		
Roche Taillante, . . .	10,499		
Mont Thabor, . . .	10,440		
Pointe des Cerces, . . .	10,434		
Tête des Toillies, . . .	10,430		
Mont Chaberton, . . .	10,286		
Tête de Moyse (Oronaye), . . .	10,204		
Pelvo d'Elva, . . .	10,053		
Mont Albergian, . . .	9974		
Bric Bouchet, . . .	9853		
Aiguille Noire (Rochilles), . . .	9489		
Punta Cournour, . . .	9410		

(3) Dauphiné Alps (W. of the Col du Galibier, and of the Guisane and the upper Durance valleys).

<i>Peaks.</i>		<i>Passes.</i>	
Pointe des Ecrins, . . .	13,462	Col de la Lauze, . . .	11,625
Meije, highest point, . . .	13,081	Col de la Casse Déserte, . . .	11,516
Meije, central peak, . . .	13,025	Col des Ecrins, . . .	11,205
Ailefroide, . . .	12,989	Col de la Pilatte, . . .	11,057
Mont Pelvoux, highest point, . . .	12,973	Col du Sélé, . . .	10,834
Mont Pelvoux, Pyramide, . . .	12,921	Brèche de la Meije, . . .	10,827
Pic Sans Nom, . . .	12,845	Col de la Temple, . . .	10,772
Meije, E. peak, . . .	12,832	Col de la Coste Rouge, . . .	10,342
Pic Gaspard, . . .	12,730	Col des Aiguilles d'Arves, . . .	10,335
Pavé, . . .	12,570	Col du Says, . . .	10,239

<i>Peaks.</i>		<i>Passes.</i>	
Grande Sagne,	12,399	Col du Clot des Cavales, . .	10,263
Pic Coolidge,	12,323	Col Lombard,	10,171
Râteau,	12,317	Col du Sellar,	10,063
Grande Ruine,	12,317	Col de la Muande,	10,037
Roche Faurio,	12,192	Col du Goléon,	9449
Pic Bourcet,	12,130	*Col du Galibier,	8721
Fifre,	12,074	Col de la Muzelle,	8202
Pic de la Grave,	12,051	Col de l'Eychauda,	7970
Montagne des Agneaux, .	12,008	Col des Prés Nouveaux, . .	7523
Les Bans,	11,979	Col des Sept Laux,	7166
Sommet des Rouies, . . .	11,923	*Col du Lautaret,	6808
Aiguille du Plat,	11,818	*Col du Glandon,	6401
Pic d'Olan,	11,739	*Col d'Ornon,	4462
Cime de Clot-Châtel, . .	11,730	*†Col de la Croix Haute, . .	3829
Plaret,	11,713		
Pointe du Vallon des Etages,	11,693		
Tête de l'Etret,	11,690		
Pic Bonvoisin,	11,680		
Aiguille d'Arves,	11,529		
Pic des Aupillous,	11,503		
Grandes Rousses,	11,395		
Roche de la Muzelle, . .	11,349		
Sirac,	11,280		
Pic du Says,	11,185		
Pointe des Arcas,	11,175		
Aiguille des Arias,	11,159		
Aiguille du Soreiller, . .	11,113		
Pic des Prés les Fonds, .	11,034		
Tête de Lauranoure, . . .	10,962		
Mont Savoyat,	10,959		
Pic de Verdonne,	10,906		
Roche du Grand Galibier, .	10,637		
Cime du Grand Sauvage, .	10,594		
Pic du Clapier du Peyron,	10,407		
Vieux Chaillol,	10,378		
Tête de Vautisse,	10,375		
Pic des Souffles,	10,168		
Belledonne,	9781		
Taillefer,	9387		
Obiou,	9164		
Grand Veymont,	7697		
Mont Aiguille,	6880		
Grand Som,	6670		

(4) **Graian Alps** (from the Mont Cenis to the Col de la Seigne).

The main watershed forms the Central Graians, which are flanked E. and W. by two great mountain masses that are connected with it by two isthmuses.

<i>Peaks.</i>		<i>Passes.</i>	
Grand Paradis (E.), . . .	13,324	Col de la Grande Rousse	
Grivola (E.), . . .	13,022	(C.), . . .	11,483
Petit Paradis (E.), . . .	12,920	Col de Gébroulaz (W.), . .	11,385
Cresta Gastaldi (E.), . . .	12,671	Col de Monei (E.), . . .	11,247
Grande Casse (W.), . . .	12,668	Col du Grand Paradis (E.), .	10,988
Becca di Montandeyné (E.), .	12,632	Col de Teleccio (E.), . . .	10,913
Punta Bianca (Grivola) (E.), .	12,471	Col de Grandcroux (E.), . .	10,844
Mont Pourri (W.), . . .	12,428	Col de Lauzon (E.), . . .	10,831
Mont Herbetet (E.), . . .	12,396	Col de l'Herbetet (E.), . . .	10,686
Pointe de Charbonel (C.), . .	12,336	Col du Collerin (C.), . . .	10,506
Aiguille de la Grande Sas-		Col de Bassac (C.), . . .	10,345
sière (C.), . . .	12,323	Col du Carro (C.), . . .	10,302
Dent Parrachée (W.), . . .	12,179	Col de la Goletta (C.), . . .	10,237
Punta Budden (E.), . . .	12,153	Col de Rhêmes (C.), . . .	10,174
Tour du Grand St. Pierre		Col de Sea (C.), . . .	10,115
(E.), . . .	12,113	Col de l'Autaret (C.), . . .	10,073
Punta Nera (Grivola) (E.), .	12,113	Col de Girard (C.), . . .	9987
Ciamarella (C.), . . .	12,061	Col d'Arnas (C.), . . .	9889
Cima di Charforon (E.), . . .	12,025	Col de la Galise (C.), . . .	9836
Grande Motte (W.), . . .	12,018	Col della Nouva (E.), . . .	9623
Albaron (C.), . . .	12,015	Fenêtre de Champorcher	
Punta Rossa (Grivola) (E.), .	11,982	(E.), . . .	9311
Roccia Viva (E.), . . .	11,976	Col de Vaudet (C.), . . .	9305
Tête de la Tribulation (E.), .	11,949	Col de Bardoney (E.), . . .	9295
Levanna, central peak (C.), .	11,943	Col de Chavière (W.), . . .	9206
Bessanese (C.), . . .	11,917	Col de la Leisse (W.), . . .	9121
Pointe des Pattes des Cha-		Col du Mont Iseran (C.-W.), .	9085
mois (C.), . . .	11,917	Col du Palet (W.), . . .	8721
Punta di Gaŷ (E.), . . .	11,887	Col du Mont (C.), . . .	8681
Dôme de l'Arpont (W.), . . .	11,874	Col de la Croix de Nivolet	
Pointe de Ronce (C.), . . .	11,871	(C.-E.), . . .	8665
Mont Thuria (W.), . . .	11,861	Col de la Vanoise (W.), . .	8291
Dôme de la Sache (W.), . . .	11,848	Col de la Seigne (C.), . . .	8242
Tresenta (E.), . . .	11,841	*Little St. Bernard (C.), . .	7179
Bec de l'Invergnan (C.), . .	11,838	*Mont Cenis (C.), . . .	6893
Levanna, W. peak (C.), . . .	11,835		
Tsanteleina (C.), . . .	11,831		
Dôme de Chasseforêt (W.), .	11,802		
Croce Rossa (C.), . . .	11,703		
Aiguille de Pécelet (W.), . .	11,700		
Levanna, E. peak (C.), . . .	11,693		
Mont Emilius (E.), . . .	11,677		
Becca di Monciair (E.), . . .	11,628		
Tête de Valnontey (E.), . . .	11,625		

<i>Peaks.</i>	
Pic du Ribon (C.), . . .	11,625
Punta d'Arnas (C.), . . .	11,615
Aiguille de Polset (W.), . . .	11,608
Rochemelon (C.), . . .	11,605
Grivoletta (E.), . . .	11,569
Tersiva (E.), . . .	11,526
Grand Sertz (E.), . . .	11,516
Pointe du Châtelard (W.), . . .	11,493
Pointe de Garin (E.), . . .	11,447
Ondezana (E.), . . .	11,444
Grand Nomenon (E.), . . .	11,444
Rutor (C.), . . .	11,438
Grande Aiguille Rousse (C.), . . .	11,424
Cime de Quart dessus (C.), . . .	11,398
Granta Parey (C.), . . .	11,395
Roc du Mulinet (Martellot)	
(C.), . . .	11,382
Punta del Broglio (E.), . . .	11,336
Pointe de la Sana (W.), . . .	11,319
Doravidi Sud (C.), . . .	11,316
Becca di Noaschetta (E.), . . .	11,310
Punta Francesetti (C.), . . .	11,290
Levanetta (C.), . . .	11,280
Pointe de l'Echelle (W.), . . .	11,260
Rocher de Pierre Pointe	
(C.), . . .	11,254
Dôme de Polset (W.), . . .	11,254
Sommet de Bellecôte (W.), . . .	11,224
Becca di Suessa (C.), . . .	11,214
Punta del Tuf (E.), . . .	11,208
Punta Foura (E.), . . .	11,188
Becca du Lac (C.), . . .	11,185
Pointe des Sengies (E.), . . .	11,182
Monte Nero (E.), . . .	11,126
Pointe de la Glière (W.), . . .	11,109
Punta Bonneval (C.), . . .	11,106
Punta della Gura (C.), . . .	11,100
Cima Monfret (C.), . . .	11,067
Pointe Rénod (W.), . . .	11,063
Pointe de Piatou (C.), . . .	11,027
Becs de la Tribulation (E.), . . .	11,024
Pointe de la Galise (C.), . . .	10,975
Pointe de la Traversière (C.), . . .	10,962
Monveso di Forzo (E.), . . .	10,890
Punta Lavina (E.), . . .	10,884
Punta Crevasse (E.), . . .	10,850
Punta di Forzo (E.), . . .	10,834
Pointe de la Goletta (C.), . . .	10,798
Cime d'Oin (C.), . . .	10,752
Tour d'Arpisson (E.), . . .	10,700
Mont Favre (C.), . . .	10,693

Passes.

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Graian Alps—continued.

<i>Peaks.</i>		<i>Passes.</i>
Grande Arolla (E.), . . .	10,667	
Signal du Mont Iseran (C.), . . .	10,634	
Becca di Nona (E.), . . .	10,309	
Pointe de Léchaud (C.), . . .	10,260	
Torre d'Ovarda (C.), . . .	10,089	
Uja di Mondrone (C.), . . .	9725	
Crammont (C.), . . .	8980	
Mont Jovet (W.), . . .	8409	
Monte Civrari (C.), . . .	7553	

(5) Chain of Mont Blanc (from the Col de la Seigne to the Col Ferret).

<i>Peaks.</i>		<i>Passes.</i>	
Mont Blanc, . . .	15,782	Col de la Brenva, . . .	14,217
Mont Blanc de Courmayeur, . . .	15,595	Col Émile Rey, . . .	13,147
Picco Luigi Amedeo, . . .	14,673	Col de Triolet, . . .	12,110
Mont Maudit, . . .	14,669	Col de la Tour Ronde, . . .	11,959
Dôme du Goûter, . . .	14,118	Col du Mont Dolent, . . .	11,625
Mont Blanc du Tacul, . . .	13,941	Col d'Argentière, . . .	11,536
Grandes Jorasses, . . .	13,797	Col de Talèfre, . . .	11,430
Aiguille Verte, . . .	13,541	Col des Hironnelles, . . .	11,369
Aiguille Blanche de Pétérét, . . .	13,482	Col de Leschaux, . . .	11,280
Aiguille de Bionnassay, . . .	13,341	Col de Miage, . . .	11,077
Mont Brouillard, . . .	13,298	Col du Géant, . . .	11,060
Les Droites, . . .	13,222	Col du Chardonnet, . . .	10,909
Aiguille du Géant, . . .	13,170	Col du Tour, . . .	10,762
Dôme de Rochefort, . . .	13,163	Fenêtre de Saleinaz, . . .	10,709
Aiguille de Rochefort, . . .	13,134	Col du Mont Tondu, . . .	9498
Mont Mallet, . . .	13,085	Col Ferret, . . .	8311
Calotte de Rochefort, . . .	13,032	Col de la Seigne, . . .	8242
Aiguille de Trélatêtc, . . .	12,832	Col de Sesanfe, . . .	8202
Aiguille d'Argentière, . . .	12,819	Col du Bonhomme, . . .	8147
Aiguille de Triolet, . . .	12,717	Col de Sagerou, . . .	7917
Les Courtes, . . .	12,648	Col d'Anterne, . . .	7425
Aiguille du Goûter, . . .	12,609	Col de Balme, . . .	7221
Aiguille du Midi, . . .	12,609	Col de Coux, . . .	6313
Tour Noir, . . .	12,586	Col de Voza, . . .	5496
Aiguille des Glaciers, . . .	12,579	Col de la Golèse, . . .	5482
Mont Dolent, . . .	12,543	*Col de la Forclaz, . . .	4987
Aiguille du Chardonnet, . . .	12,540	*†Col des Montets, . . .	4741
Tour Ronde, . . .	12,441	*†Pas de Morgins, . . .	4511
Aiguille Noire de Pétérét, . . .	12,402		
Aiguille de Leschaux, . . .	12,369		
Aiguille du Dru (Grand Dru), . . .	12,320		
Aiguille de Talèfre, . . .	12,268		
Aiguille du Dru (Petit Dru), . . .	12,245		
Aiguille de la Neuvaz, . . .	12,241		
Aiguille de l'Allée Blanche, . . .	12,156		

<i>Peaks.</i>	
Aiguilles Rouges du Dolent, . . .	12,110
Dôme de Miage, . . .	12,100
Aiguille du Plan, . . .	12,051
Petites Jorasses, . . .	12,002
Aiguille d'Entrèves, . . .	11,857
Grande Fourche, . . .	11,844
Aiguille de l'Eboulement, . . .	11,841
Dames Anglaises, . . .	11,825
Aiguille du Tour, . . .	11,615
Aiguille de Toule, . . .	11,592
Aiguille de Blaitière, . . .	11,549
Aiguille de la Varappe (Aiguilles Dorées), . . .	11,549
Grand Darrei, . . .	11,533
Petit Darrei, . . .	11,510
Grande Luis, . . .	11,497
Les Périades, . . .	11,454
Aiguille de Grépon, . . .	11,447
Aiguille Forbes, . . .	11,418
Aiguille des Grands Char- moz, . . .	11,293
Aiguille du Tacul, . . .	11,280
Dent du Requin, . . .	11,218
Aiguille du Moine, . . .	11,198
Pointe d'Orny, . . .	10,742
Dent du Midi, . . .	10,696
Tour Salrières, . . .	10,588
Mont Tondou, . . .	10,486
Dent du Midi (Cime de l'Est), . . .	10,434
Buet, . . .	10,201
Pointe de Tanneverge, . . .	9784
Pointe Percée du Reposoir, . . .	9029
Pointe du Colloney, . . .	8832
Catogne, . . .	8527
Mont Joly, . . .	8291
Brévent, . . .	8284
Point de Salles, . . .	8183
Aiguille de Varens, . . .	8163
Môle, . . .	6132
Les Voirons, . . .	4876
Salève, . . .	4528

Passes.

(6) Central Pennine Alps (from the Col Ferret to the St Théodule).

<i>Peaks.</i>		<i>Passes.</i>	
Weisshorn, . . .	14,804	Moming Pass, . . .	12,287
Matterhorn, . . .	14,782	Tiefenmattenjoch, . . .	11,788
Dent Blanche, . . .	14,318	Col du Lion, . . .	11,736
Grand Combin, . . .	14,164	Col de Valpelline, . . .	11,687

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Central Pennine Alps—continued.

<i>Peaks.</i>		<i>Passes.</i>	
Pointe de Graffeneire (Com-		Biesjoch,	11,644
bin),	14,108	Triftjoch,	11,615
Zinal Rothorn,	13,856	Col du Sonadon,	11,447
Dent d'Hérens,	13,715	Col d'Hérens,	11,418
Bieshorn,	13,652	Col Durand,	11,398
Combin de Valsorey,	13,600	Col de Tournanche,	11,378
Combin de Zessetta,	13,518	Col des Maisons Blanches,	11,241
Ober Gabelhorn,	13,364	Col de Bertol,	11,200
Grand Cornier,	13,022	Brunneggjoch,	11,100
Ober Mominghorn,	13,019	Furggjoch,	11,014
Schallhorn,	12,986	Col du Mont Rouge,	10,962
Wellenkuppe,	12,829	St. Théodule Pass,	10,899
Ruinette,	12,727	Col de Tracuit,	10,670
Pointe de Mountet,	12,723	Col d'Oren,	10,637
Pointe des Grandes Mu-		Col de Seilon,	10,499
railles,	12,720	Col de Valcournera,	10,325
Mont Blanc de Seilon,	12,700	Col de Collon,	10,270
Dents des Bouquetins,	12,625	Col de Valsorey,	10,214
Brunnegghorn,	12,619	Col de Torrent,	9593
Tête de Valpelline,	12,510	Augstbord Pass,	9492
Pointe de Zinal,	12,487	Col de Crête Sèche,	9475
Pigne d'Arolla,	12,471	Pas de Chèvres,	9354
Mont Vélan,	12,353	Col de Sorebois,	9266
Tête Blanche,	12,304	Col de Vessona,	9167
Evêque,	12,264	Col de Fenêtre,	9141
Trifhorn,	12,261	Z'Meiden Pass,	9095
Tête du Lion,	12,215	Col Serena,	8327
Combin de Corbassière,	12,212	Col Ferret,	8311
Mont Pleureur,	12,159	*Great St. Bernard,	8111
Aiguille des Maisons			
Blanches,	12,136		
Crête de Millon,	12,133		
Dent Perroc,	12,071		
Pointe des Genevois,	12,070		
Gross Hohwänghorn,	12,068		
Lo Besso,	12,058		
Aiguille de la Za,	12,051		
Pointe de Bricolla,	12,018		
Aiguilles Rouges d'Arolla,	11,976		
Mont Collon,	11,956		
Dents des Rosses,	11,887		
Mont Brulé,	11,880		
Diablons,	11,828		
Amianthe,	11,812		
Stockhorn (Col d'Hérens),	11,795		
Pointe de Mourti,	11,762		
Moine,	11,725		
Ritord,	11,705		
Dents de Bertol,	11,666		
Bec d'Epicoun,	11,572		

<i>Peaks.</i>	
Mont Gelé, . . .	11,539
Bec de Luseney, . . .	11,503
Aiguille Verte de Valsorey, . . .	11,493
Château des Dames, . . .	11,447
Bouquetin, . . .	11,431
Theodulhorn, . . .	11,392
Becca d'Arbiera, . . .	11,293
Mettelhorn, . . .	11,188
Pointe d'Otemma, . . .	11,136
Punta del Dragone, . . .	11,136
Punta di Fontanella, . . .	11,109
Pointe de Rosa Blanche, . . .	10,985
Mont Avril, . . .	10,962
Mont Fort, . . .	10,926
Grande Rochère, . . .	10,913
Sasseneire, . . .	10,693
Grand Golliaz, . . .	10,630
Cima di Livournea, . . .	10,522
Schwarzhorn (Augstbord), . . .	10,512
Bella Tola, . . .	9935

Passes.(7) **Eastern Pennine Alps** (from the St. Théodule to the Simplon).

<i>Peaks.</i>	
Monte Rosa (Dufourspitze), . . .	15,217
Monte Rosa (Grenzgipfel), . . .	15,194
Monte Rosa (Nord End), . . .	15,132
Monte Rosa (Zumsteinspitze), . . .	15,004
Monte Rosa (Signalkuppe or Punta Gnifetti), . . .	14,965
Dom (Mischabelhörner), . . .	14,942
Lyskamm, . . .	14,889
Taschhorn, . . .	14,758
Monte Rosa (Parrotspitze), . . .	14,643
Monte Rosa (Ludwigshöhe), . . .	14,259
Nadelhorn, . . .	14,220
Südlenspitze, . . .	14,108
Stecknadelhorn, . . .	13,896
Hohberghorn, . . .	13,865
Monte Rosa (Schwarzhorn), . . .	13,882
Castor (Twins), . . .	13,879
Monte Rosa (Vincent Pyramide), . . .	13,829
Alphubel, . . .	13,803
Rimpfischhorn, . . .	13,790
Strahlhorn, . . .	13,751
Zermatt Breithorn, . . .	13,685
Monte Rosa (Balmenhorn), . . .	13,500
Pollux, . . .	13,433

Passes.

Silbersattel, . . .	14,732
Colle Gnifetti, . . .	14,699
Zumsteinsattel, . . .	14,601
Sesiajoch, . . .	14,515
Domjoch, . . .	14,062
Lysjoch, . . .	14,033
Colle Vincent, . . .	13,652
Mischabeljoch, . . .	12,651
Fee Pass, . . .	12,507
Alphubel Pass, . . .	12,474
Adler Pass, . . .	12,461
Schwarzthor, . . .	12,274
Schwarzberg Weisssthor, . . .	11,851
Ried Pass, . . .	11,800
New Weisssthor, . . .	11,746
Allalin Pass, . . .	11,713
Colle delle Loccie, . . .	11,001
St. Théodule Pass, . . .	10,899
Zwischbergen Pass, . . .	10,657
Cimes Blanches, . . .	9777
Col d'Olen, . . .	9420
Monte Moro, . . .	9390
Antrona Pass, . . .	9331
Turlo Pass, . . .	8977
Bettafurka, . . .	8780

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Eastern Pennine Alps—continued.

<i>Peaks.</i>	<i>Passes.</i>
Monte Rosa (Punta Giordani), 13,304	Col de Valdobbia, . . . 8134
Dürrenhorn, . . . 13,239	Col de Moud, . . . 7622
Allalinhorn, . . . 13,236	Col d'Egua, . . . 7336
Weissmies, . . . 13,226	*†Simplon Pass, . . . 6592
Laquinhorn, . . . 13,140	Baranca Pass, . . . 5971
Rossbodehorn, . . . 13,128	
Jägerhorn, . . . 13,042	
Ulrichshorn, . . . 12,891	
Klein Matterhorn, . . . 12,750	
Cima di Jazzi, . . . 12,527	
Balfrin, . . . 12,474	
Portjengrat, . . . 12,008	
Stockhorn (Gornergrat), . . . 11,595	
Monte delle Loccie, . . . 11,477	
Sonnighorn, . . . 11,457	
Grand Tournalin, . . . 11,086	
Corno Bianco, . . . 10,893	
Grauhaupt, . . . 10,876	
Hohthäligrat, . . . 10,791	
Mattwaldhorn, . . . 10,673	
Pizzo Bianco, . . . 10,552	
Latelhorn, . . . 10,525	
Rothhorn di Gressoney, . . . 10,306	
Gornergrat, . . . 10,289	
Mont Néri, . . . 10,073	
Tagliaferro, . . . 9725	
Riffelhorn, . . . 9617	
Monte Bò, . . . 8386	

B.—THE CENTRAL ALPS (from the Simplon to the Reschen Scheideck Pass and the Stelvio).

(8) **Bernese Alps** (from the Lake of Geneva to the Lake of Lucerne, N. of the Rhone valley and of the Furka Pass, and W. of the Reuss valley).

<i>Peaks.</i>	<i>Passes.</i>
Finsteraarhorn, . . . 14,026	Lauthor, . . . 12,140
Aletschhorn, . . . 13,721	Mönchjoch, . . . 11,680
Jungfrau, . . . 13,669	Jungfrau-joch, . . . 11,385
Mönch, . . . 13,468	Strahlegg Pass, . . . 10,995
Gross Schreckhorn, . . . 13,386	Grünhornlücke, . . . 10,844
Gross Fiescherhorn, . . . 13,285	Oberaarjoch, . . . 10,607
Gross Grünhorn, . . . 13,278	Gauli Pass, . . . 10,519
Gross Lauteraarhorn, . . . 13,265	Petersgrat, . . . 10,516

<i>Peaks.</i>		<i>Passes.</i>	
Gletscherhorn,	13,065	Lötschenlücke,	10,512
Eiger,	13,042	Lauteraarsattel,	10,355
Ebnefluh,	13,006	Beich Pass,	10,289
Agassizhorn,	12,980	Triftlimmi,	10,200
Bietschhorn,	12,970	Sustenlimmi,	10,181
Trugberg, highest point, .	12,904	Tschingel Pass,	9265
Ochsenhorn,	12,812	Hohthürli Pass,	8882
Gross Wannehorn,	12,812	Lötschen Pass,	8842
Mittaghorn,	12,779	Seinenfurka,	8583
Kamm,	12,697	Wendenjoch,	8544
Grüneckhorn,	12,694	Furtwang Pass,	8393
Schonbühlhorn,	12,678	*Furka Pass,	7992
Dreieckhorn,	12,540	Rawil Pass,	7924
Gross Nesthorn,	12,533	Gemmi Pass,	7641
Kastensteinhörner,	12,501	Surenen Pass,	7563
Schienhorn,	12,491	*Susten Pass,	7422
Lauterbrunnen Breithorn, .	12,399	Sanetsch Pass,	7331
Grosshorn,	12,353	Joch Pass,	7267
Gross Näsishorn,	12,300	*Grimsel Pass,	7100
Distelhorn,	12,297	†Kleine Scheidegg,	6772
Geisshorn,	12,291	Col de Cheville,	6723
Sattelhorn,	12,287	Grosse Scheidegg,	6434
Klein Lauteraarhorn, . . .	12,277	†Col de Jaman,	4974
Kranzberg,	12,202	*†Brünig Pass,	3396
Klein Wannehorn,	12,195		
Balmhorn,	12,176		
Mittelhorn (Wetterhorn), .	12,166		
Silberhorn,	12,156		
Hasle Jungfrau (Wetterhorn),	12,149		
Rothorn (Fusshörner), . .	12,143		
Rosenhorn (Wetterhorn), .	12,110		
Klein Näsishorn,	12,094		
Blümlisalphorn,	12,044		
Breitlauhorn,	12,018		
Weisse Frau,	12,008		
Trugberg, central point, .	12,008		
Berglistock,	11,999		
Gross Doldenhorn,	11,966		
Oberaarhorn,	11,949		
Studerhorn,	11,933		
Altels,	11,930		
Dammastock,	11,920		
Morgenhorn,	11,907		
Fusshorn,	11,903		
Hugihorn,	11,884		
Ankenbälli,	11,828		
Lonzhorn,	11,805		
Galenstock,	11,802		
Tschingelhorn,	11,743		
Unterbachhorn,	11,733		
Grunerhorn,	11,615		

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Bernese Alps—continued.

<i>Peaks.</i>	<i>Passes.</i>
Galmi,	11,562
Trugberg, lowest point,	11,526
Tiefenstock,	11,526
Sustenhorn,	11,523
Klein Schreckhorn,	11,474
Gwachtenhorn (Stein),	11,427
Scheuchzerhorn,	11,388
Gross Rinderhorn,	11,342
Wasenhorn,	11,342
Gspaltenhorn,	11,293
Fleckistock,	11,214
Scheidegg Wetterhorn,	11,201
Thieralplistock,	11,175
Hühnerstock,	10,985
Klein Bietschhorn,	10,985
Ewigschneehorn,	10,929
Hinter Sustenhorn,	10,893
Olmenhorn,	10,886
Stucklistock,	10,857
Gletschhorn,	10,850
Hangendgletscherhorn,	10,808
Rizlihorn,	10,768
Bachlistock,	10,742
Wildhorn,	10,709
Wildstrubel,	10,673
Diablerets,	10,650
Titlis,	10,627
Gross Spannort,	10,506
Wellhorn,	10,486
Steinlauenenhorn,	10,381
Klein Spannort,	10,332
Schlossberg,	10,279
Oldenhorn,	10,250
Brandlammhorn,	10,220
Krönte,	10,197
Mettenberg,	10,194
Löffelhorn,	10,165
Grand Muveran,	10,043
Gross Lohner,	10,023
Gross Wendenstock,	9987
Wendenhorn,	9961
Sparrhorn,	9928
Fünffingerspitze (Stein),	9850
Torrenthorn,	9853
Grande Dent de Morcles,	9777
Schilthorn,	9754
Eggishorn,	9626
Uri Rothstock,	9620
Tour St. Martin,	9557
Aelplistock,	9498

<i>Peaks.</i>		<i>Passes.</i>
Gross Sidelhorn,	9452	
Gstellihorn,	9374	
Gross Engelhorn,	9131	
Albristhorn,	9069	
Pierre Cabotz,	8993	
Tschingelochtighorn,	8990	
Faulhorn,	8803	
King's Peak (Engelhörner),	8616	
Simmelistock,	8160	
Sulegg,	7914	
Vanil Noir,	7858	
Niesen,	7763	
Brienzer Rothhorn,	7714	
Hohgant,	7225	
Stockhorn,	7192	
Kaiseregg,	7182	
Pilatus (Tomlishorn),	6995	
Chamossaire,	6942	
Rochers de Naye,	6710	
Molèson,	6582	
Dent de Jaman,	6165	
Napf,	4629	

(9) **Lepontine Alps** (from the Simplon to the Splügen Pass,
S. of the Furka and Oberalp Passes).

<i>Peaks.</i>		<i>Passes.</i>	
Monte Leone,	11,684	Zapport Pass,	10,105
Rheinwaldhorn,	11,149	Lentalücke,	9692
Güferhorn,	11,132	Hohsand Pass,	9603
Blindenhorn,	11,103	Lecki Pass,	9554
Siedel Rothhorn,	10,801	Rotondo Pass,	9449
Basodino,	10,749	Wyttengewasser Pass,	9367
Piz Tambo,	10,749	Kaltwasser Pass,	9351
Helsenhorn,	10,742	Fanella Pass,	9318
Wasenhorn,	10,680	Plattenschlucht Pass,	9315
Ofenhorn,	10,637	Scaradra Pass,	9088
Lentahorn,	10,621	Satteltelücke,	9082
Vogelberg,	10,565	Ritter Pass,	8832
Cherbadung,	10,542	Cavanna Pass,	8566
Piz Medel,	10,509	Scatta Minoja,	8521
Scopi,	10,499	Forcla di Cristallina,	8475
Pizzo Rotondo,	10,489	Bocca di Cadlimo,	8340
Hüllehorn,	10,453	Unteralp Pass,	8301
Piz Vial,	10,388	Valserberg,	8225
Pizzo dei Piani,	10,361	Safierberg,	8170
Punta Mottiscia,	10,355	Geisspfad Pass,	8120
Piz Terri,	10,338	Gries Pass,	8098
Zapporthorn,	10,332	Passo di Naret,	8015

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Lepontine Alps—continued.

<i>Peaks.</i>		<i>Passes.</i>	
Piz Scharboden, . . .	10,250	Nufenen Pass, . . .	8006
Piz Aul, . . .	10,250	*Furka Pass, . . .	7992
Pizzo di Pesciora, . . .	10,247	Bocca di Curciosa, . . .	7970
Fanellahorn, . . .	10,243	Diesrut Pass, . . .	7953
Pizzo Terre, . . .	10,168	Albrun Pass, . . .	7907
Wyttengewasserstock, . . .	10,119	Greina Pass, . . .	7743
Campo Tencia, . . .	10,089	San Giacomo Pass, . . .	7573
Leckhorn, . . .	10,069	Passo di Buffalora, . . .	7431
Cima dei Cogni, . . .	10,066	Passo della Forcola, . . .	7274
Bruschghorn, . . .	10,020	Passo dell' Uomo, . . .	7258
Alperschellhorn, . . .	9991	*Splügen Pass, . . .	6946
Cima di Balniscio, . . .	9968	*†St. Gotthard Pass, . . .	6936
Banhorn, . . .	9935	*San Bernardino Pass, . . .	6769
Corbet, . . .	9925	*Oberalp Pass, . . .	6719
Piz Blas, . . .	9918	*†Simplon Pass, . . .	6592
Güschhorn, . . .	9918	Passo di San Jorio, . . .	6418
Monte Giove, . . .	9876	*Lukmanier Pass, . . .	6289
Pizzo Centrale, . . .	9853		
Pizzas d'Annarosa, . . .	9849		
Piz Beverin, . . .	9843		
Weisshorn, . . .	9817		
Bettlihorn, . . .	9718		
Piz Lucendro, . . .	9708		
Piz Tomül, . . .	9676		
Neufelgiuhorn, . . .	9666		
Gross Schienhorn, . . .	9653		
Bärenhorn, . . .	9620		
Six Madun (Badus), . . .	9619		
Klein Schienhorn, . . .	9597		
Piz Muraun, . . .	9512		
Zervreilerhorn, . . .	9508		
Monte Cistella, . . .	9353		
Piz Lukmanier, . . .	9115		
Monte Prosa, . . .	8983		
Pizzo Columbè, . . .	8363		
Monte Camoghè, . . .	7303		
Piz Mundann, . . .	6775		
Monte Generoso, . . .	5591		
Monte San Salvatore, . . .	3004		

(10) The Range of the Tödi (Oberalp Pass to the Klausen Pass and the Lake of Walenstadt).

<i>Peaks.</i>		<i>Passes.</i>	
Tödi (Piz Rusein), . . .	11,887	Porta da Spescha, . . .	11,024
Tödi (Glärner), . . .	11,815	Clariden Pass, . . .	9741
Tödi (Sandgipfel) . . .	11,267	Planura Pass, . . .	9646

<i>Peaks.</i>		<i>Passes.</i>	
Bifertenstock,	11,241	Kammliücke,	9344
Stockgron,	11,214	Sardona Pass,	9318
Piz Urlaun,	11,060	Sand Alp Pass,	9121
Oberalpstock,	10,926	Brunni Pass,	8977
Porphir,	10,926	Segnes Pass,	8613
Gross Scheerhorn, . . .	10,814	Kisten Pass,	8203
Claridenstock,	10,729	Panixer Pass,	7897
Düssistock,	10,703	Krügli Pass,	7710
Ringelspitz,	10,667	Foo Pass,	7290
Brigelserhörner (Kavestrau)	10,663	*Oberalp Pass,	6719
Vogelberg,	10,565	*Klausen Pass,	6404
Grosse Windgälle, . . .	10,473		
Hausstock,	10,342		
Gross Ruchen,	10,289		
Bündtner Tödi,	10,253		
Piz Segnes,	10,178		
Piz Giuf,	10,165		
Crispalt,	10,105		
Bristenstock,	10,086		
Selbsanft,	9938		
Vorab,	9925		
Kleine Windgälle, . . .	9804		
Tschingelhörner, . . .	9351		
Piz Sol,	9348		
Calanda,	9213		
Kärpfstock,	9177		
Mageren,	8294		
Mürtschenstock,	8012		

(11) **The Alps of North-East Switzerland** (N. of the Klausen Pass and the Lake of Walenstadt).

<i>Peaks.</i>		<i>Passes.</i>	
Glärnisch,	9580	Ruosalperkulm,	7126
Böser Faulen,	9200	Karren Alp Pass,	6877
Silberstock,	8824	Kinzigkulm,	6811
Säntis,	8216	*Klausen Pass,	6404
Altmann,	7999	Kamor Pass,	5512
Faulfirst,	7825	Pragel Pass,	5099
Alvier,	7694	Hacken Pass,	4649
Kurfürsten,	7576	Holzegg Pass,	4616
Speer,	6411	*Ibergeregge Pass, . . .	4613
Gross Mythen,	6240	*Etzel Pass,	3146
Rigikulm,	5906		
Hoher Kasten,	5899		
Rossberg,	5194		
Albis Hochwacht,	2887		
Uetliberg,	2864		

(12) **Bernina Alps** (from the Maloja to the Reschen Scheideck and the Stelvio, N. of the Valtelline and E. of the Val Bregaglia and the Engadine).

<i>Peaks.</i>		<i>Passes.</i>	
Piz Bernina,	13,304	Fuorcla Bellavista,	12,087
Piz Zupo,	13,151	Fuorcla Sella,	11,840
Pizzo Bianco (Bernina),	13,117	Fuorcla Crast' Agüzza,	11,805
Monte di Scerscen,	13,016	Fuorcla Tschierva,	11,572
Piz Roseg, higher point,	12,934	Passo di Bondo,	10,227
Piz Argient,	12,914	Passo di Castello,	10,171
Piz Roseg, lower point,	12,885	Passo Tremoggia,	9912
Piz Palü,	12,835	Passo di Mello,	9813
Crast' Agüzza,	12,704	Diavolezza Pass,	9767
Piz Morteratsch,	12,317	Passo di Dosdè,	9351
Monte della Disgrazia,	12,067	*Stelvio Pass,	9055
Bellavista,	11,884	Passo di Sacco,	9026
Piz Prielvusa,	11,854	Passo di Zocca,	9000
Piz Cambrena,	11,835	Casana Pass,	8832
Piz Tschierva,	11,693	Muretto Pass,	8389
Pizzo di Verona,	11,359	Canciano Pass,	8366
Piz Corvatsch,	11,339	*Umbrail Pass,	8242
Piz Tremoggia,	11,326	Stretta Pass,	8143
Cima di Piazza,	11,283	Passo di Val Viola,	7976
Cima di Castello,	11,155	Giufplan (Buffalora) Pass,	7723
Il Chapütschin,	11,126	*Bernina Pass,	7645
Cima Viola,	11,103	*Forcola di Livigno,	7638
Piz Cengalo,	11,070	Cruschetta Pass,	7599
Cima di Rosso,	11,060	Passo di Verva,	7592
Pizzo Torrone,	11,037	Schlinig Pass,	7540
Cima di Cantone,	11,024	Foscagno Pass,	7517
Corno di Lago Spalmo,	10,962	Alpisella Pass,	7497
Monte Sissone,	10,942	*Scarl Pass,	7386
Punta Rasica,	10,926	Dössradond Pass,	7349
Pizzo Scalino,	10,903	Dheira Pass,	7248
Corno Sinigaglia (Corni di Verva),	10,870	*Ofen Pass,	7071
Piz Badile,	10,863	Fräele Pass,	6398
Cima di Vazzeda,	10,854	Scale di Fräele,	6372
Corno di Campo,	10,844	*Maloja Pass,	5935
Pizzo del Ferro (Bregaglia),	10,804	*Reschen Scheideck,	4902
Pizzo di Dosdè,	10,762		
Cima di Saoseo,	10,752		
Piz Languard,	10,716		
Pizzi Gemelli,	10,693		
Piz Misaun,	10,676		
Piz Bacone,	10,660		
Sciara di dentro,	10,634		
Corno di Dosdè,	10,598		
Piz Sesvenna,	10,568		
Pioda di Sciora,	10,545		

<i>Peaks.</i>	<i>Passes.</i>
Ago di Sciora, . . .	10,502
Sciora di fuori, . . .	10,499
Piz Surlej, . . .	10,473
Cima del Largo, . . .	10,460
Piz Pisoc, . . .	10,427
Monte di Zocca, . . .	10,427
Piz Murtaröl, . . .	10,424
Piz Plavna dadaint, . . .	10,414
Piz Tavrù, . . .	10,394
Monte Valnera, . . .	10,375
Pizzo della Margna, . . .	10,355
Piz Quaternals, . . .	10,348
Monte Cornacchia, . . .	10,325
Sasso di Conca, . . .	10,312
Cime di Redasco, . . .	10,299
Piz Pisoc, S. peak, . . .	10,299
Piz d'Esen, . . .	10,270
Corno di Capra, . . .	10,263
Piz Aguagliouls, . . .	10,256
Piz Schumbraida, . . .	10,247
Piz Zuort, . . .	10,243
Piz Lischanna, . . .	10,204
Piz San Jon, . . .	10,154
Pizzo di Sena (Vetta Sper- ella), . . .	10,099
Pizzo Porcellizzo, . . .	10,086
Piz Casana, . . .	10,079
Piz del Diavel, . . .	10,079
Monte Saliente, . . .	10,030
Piz Laschadurella, . . .	10,020
Monte Foscagno, . . .	10,010
Monte del Ferro (Livigno), . . .	10,007
Pizzo del Teo, . . .	10,007
Piz Grass, . . .	9987
Piz Umbrail, . . .	9955
Pizzo Ligoncio, . . .	9948
Zwei Schwestern, . . .	9784
Monte Braulio, . . .	9777
Urtiolaspitze, . . .	9551
Sassalbo, . . .	9377
Dreisprachenspitze, . . .	9328
Munt la Schera, . . .	8494

(13) **Albula Group** (from the Splügen to the Flüela and the Maloja Passes).

<i>Peaks.</i>	<i>Passes.</i>
Piz Kesch, . . .	11,228
Piz dellas Calderas, . . .	11,132
Piz Platta, . . .	11,109
Fuorcla Calderas, . . .	10,270
Fuorcla d'Es-chia, . . .	9869
Passo della Duana, . . .	9187

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Albula Group—continued.

<i>Peaks.</i>		<i>Passes.</i>	
Piz Julier,	11,106	Sertig Pass,	9062
Piz d'Err,	11,093	Forcella di Prassignola, . .	8924
Piz d'Aela,	10,959	Forcella di Lago,	8793
Piz Uertsch,	10,739	Forcellina,	8770
Piz Forbisch,	10,689	Ducan Pass,	8763
Piz Ot,	10,667	Passo di Lei,	8724
Gross Piz Vadret,	10,584	Forcella di Lunghino, . . .	8645
Piz d'Agnelli,	10,529	Scaletta Pass,	8593
Piz d'Arblatsch,	10,512	Fuorcla d'Alp Fontauna, . .	8580
Piz Timun or d'Emet,	10,502	Grialetsch Pass,	8553
Tinzenhorn,	10,430	*Flüela Pass,	7838
Piz Lagrev,	10,401	Strela Pass,	7799
Piz Michel,	10,378	*†Albula Pass,	7595
Pizzo Stella,	10,375	Septimer Pass,	7582
Flüela Schwarzhorn,	10,335	*Julier Pass,	7504
Pizzo della Duana,	10,279	Passo di Madesimo,	7481
Pizzo Gallegione,	10,201	*Splügen Pass,	6946
Piz d'Albana,	10,184	*Maloja Pass,	5935
Hoch Ducan,	10,060	*†Laret Pass,	5358
Piz Grisch,	10,000		
Averser Weissberg,	9987		
Piz Por,	9951		
Surettahorn,	9945		
Arosa Rothhorn,	9794		
Pizzo Lunghino,	9121		
Stätzerhorn,	8450		

(14) Silvretta and Rhätikon Group (from the Flüela Pass to the Reschen Scheideck and the Airlberg Pass).

<i>Peaks.</i>		<i>Passes</i>	
Piz Linard,	11,201	Jamjoch,	10,112
Fluchthorn,	11,165	Fuorcla del Confin,	10,033
Gross Piz Buin,	10,880	Buinlücke,	10,020
Verstanklahorn,	10,831	Silvretta Pass,	9886
Muttler,	10,821	Zahnücke,	9712
Piz Fliana,	10,775	Verstanklathor,	9682
Klein Piz Buin,	10,696	Fuorcla d'Urezzas,	9564
Stammerspitz,	10,689	Fuorcla Tasna,	9374
Silvrettahorn,	10,657	Fermunt Pass,	9193
Augstenberg,	10,611	Futschöl Pass,	9098
Dreiländerspitz,	10,539	Fuorcla Zadrell,	9033
Signalhorn,	10,539	Schafbücheljoch,	8685
Krone,	10,483	Fimber Pass,	8570
Thorwache,	10,460	Valtorta (Vereina) Pass, . .	8540
Piz Tasna,	10,443	Zebles Pass,	8350
Kuchenspitz,	10,401	Fless Pass,	8045

<i>Peaks.</i>		<i>Passes.</i>	
Hoher Riffler,	10,368	*Flüela Pass,	7838
Piz Mondin,	10,325	St. Antonierjoch,	7792
Küchelspitze,	10,315	Drusenthor,	7710
Gross Seehorn,	10,247	Verrajöchl,	7648
Vesilspitze,	10,220	Cavelljoch,	7343
Gross Litzner,	10,207	Schlappinerjoch,	7218
Zahnspez,	10,184	Schweizerthor,	7057
Vesulspitze,	10,145	Bielerhöhe,	6631
Piz Minschun,	10,079	Zeinisjoch,	6076
Patteriol,	10,037	*†Arlberg Pass,	5912
Hexenkopf,	9968	*Reschen Scheideck,	4902
Scesaplana,	9741		
Madrischorn,	9285		
Drusenfluh,	9282		
Sulzfluh,	9252		
Zimbaspitze,	8678		
Naafkopf,	8445		
Falknis,	8419		

C.—THE EASTERN ALPS (from the Reschen Scheideck
and the Stelvio to the Radstädter Tauern).

(15) The Alps of Bavaria, the Vorarlberg, and Salzburg (N. of
the Arlberg Pass, Innsbruck, the Pinzgau, and the Enns valley).

<i>Peaks.</i>		<i>Passes.</i>	
Parseierspitze,	9968	Gentscheljoch,	6480
Dachstein,	9830	Schrofen Pass,	5538
Zugspitze,	9738	Gerlos Pass,	4876
Hochkönig,	9639	*Pass Thurn,	4183
Valluga,	9223	*Fern Pass,	4026
Rockspitze,	9059	*Scharnitz or Seefeld Pass,	3874
E. Hohe Griesspitze,	9052	*Hirschbühl Pass,	3858
Stanskogel,	9052	†Hochfilzen Pass,	3173
Birkkarspitze (Karwendel),	9042	†*Pyhrn Pass,	3100
Watzmann,	8901	*Wagreinsattel,	2743
Rothewandspitze,	8878		
Gross Krottenkopf (Allgäu),	8718		
Selbhorn,	8711		
Hohes Licht,	8701		
Mädelegabel,	8681		
Hochvogel,	8511		
W. Karwendelspitze,	7825		
Elmauer Haltspitze,	7691		

(16) **Ortler, Oetzthal, and Stubai Ranges** (from the Reschen Scheideck and the Stelvio to the Brenner Pass, E. and S. of the Inn valley, and N. of the Tonale and Aprica Passes).

<i>Peaks.</i>		<i>Passes.</i>	
Ortler (O.), . . .	12,802	Hochjoch (O.), . . .	11,602
Königsspitze (O.), . . .	12,655	Vioz Pass (O.), . . .	10,949
Monte Cevedale (O.), . . .	12,382	Sonklarscharte (Stubai), . . .	10,916
Wildspitze (Oetzth.), . . .	12,382	Königsjoch (O.), . . .	10,811
Weisskugel (Oetzth.), . . .	12,291	Passo del Cevedale (O.), . . .	10,732
Monte Zebù (O.), . . .	12,254	Gepatschjoch (Oetzth.), . . .	10,640
Palon della Mare (O.), . . .	12,156	Ramoljoch (Oetzth.), . . .	10,479
Punta San Matteo (O.), . . .	12,113	Langtaufererjoch (Oetzth.), . . .	10,391
Monte Vioz (O.), . . .	11,956	Bildstöckljoch (St.), . . .	10,296
Thurwieserspitze (O.), . . .	11,946	Gurgler Eisjoch (Oetzth.), . . .	10,292
Hinter Brochkogel (Oetzth.), . . .	11,930	Eissee Pass (O.), . . .	10,279
Hintere Schwärze (Oetzth.), . . .	11,920	Langthalerjoch (Oetzth.), . . .	10,033
Punta Taviela (O.), . . .	11,880	Passo del Zebù (O.), . . .	9925
Similaun (Oetzth.), . . .	11,821	Säilentjoch (O.), . . .	9913
Pizzo Tresero (O.), . . .	11,818	Niederjoch (Oetzth.), . . .	9899
Trafoier Eiswand (O.), . . .	11,657	Sforzellina Pass (O.), . . .	9859
Gross Ramolkogel (Oetzth.), . . .	11,651	Pitzthalerjoch (Oetzth.), . . .	9826
Vertainspitze (O.), . . .	11,618	Eisjöchl am Bild (Oetzth.), . . .	9541
Weisseespitze (Oetzth.), . . .	11,595	Venter Hochjoch (Oetzth.), . . .	9465
Watzesspitze (Oetzth.), . . .	11,592	Tabarettscharte (O.), . . .	9459
Hochvernagtspitze (Oetzth.), . . .	11,585	*Stelvio Pass (O.), . . .	9055
Monte Rosole (O.), . . .	11,585	Gavia Pass (O.-A.), . . .	8651
Finailspitze (Oetzth.), . . .	11,529	Timmeljoch (St.-Oetzth.), . . .	8232
Zuckerhütl (St.), . . .	11,520	Jaufen Pass (St.), . . .	6870
Schalfkogel (Oetzth.), . . .	11,516	*Tonale Pass (O.-A.), . . .	6181
Schrankogel (St.), . . .	11,483	*Reschen Scheideck (O.-Oetzth.), . . .	4902
Hohe Wilde (Oetzth.), . . .	11,418	*†Brenner Pass (St.-Z.), . . .	4495
Sonklarspitze (St.), . . .	11,405	*Aprica Pass, . . .	3875
Ruderhofspitze (St.), . . .	11,392		
Wilder Pfaff (St.), . . .	11,388		
Tuckettspitze (O.), . . .	11,346		
Wilder Freiger (St.), . . .	11,241		
Veneziaspitze (O.), . . .	11,103		
Tschengelser Hochwand (O.), . . .	11,083		
Monte Confinale (O.), . . .	11,057		
Glockthurm (Oetzth.), . . .	11,011		
Hintere Rothspitze (O.), . . .	10,975		
Fernerkogel (St.), . . .	10,827		
Monte Sobretta (O.), . . .	10,814		
Strahlkogel (St.), . . .	10,794		
Habicht (St.), . . .	10,758		
Pfärscher Tribulaun (St.), . . .	10,178		

- (17) **Lombard Alps** (from the Lake of Como to near Tirano in the Adige valley, S. of the Valtelline and of the Tonale and Aprica Passes, thus including the Bergamasque Alps).

<i>Peaks.</i>		<i>Passes.</i>	
Presanella (A.), . . .	11,694	Passo di Lares (A.), . . .	10,483
Adamello (A.), . . .	11,661	Passo della Lobbia Alta	
Carè Alto (A.), . . .	11,369	(A.), . . .	9961
Dosson di Genova (A.), . . .	11,254	Presena Pass (A.), . . .	9879
Corno di Baitone (A.), . . .	10,929	Pisgana Pass (A.), . . .	9626
Busazza (A.), . . .	10,922	Bocca di Tuckett (A.), . . .	8714
Monte Venerocolo (A.), . . .	10,886	Passo di Val Morta (B.), . . .	8534
Lobbia Alta (A.), . . .	10,486	Bocca di Brenta (A.), . . .	8376
Cima Tosa (A.), . . .	10,420	Passo del Grostè (A.), . . .	8006
Cima di Brenta (A.), . . .	10,352	Passo di Venina (B.), . . .	7983
Crozzon di Brenta (A.), . . .	10,247	Passo del Salto (B.), . . .	7937
Cima d'Ambies (A.), . . .	10,155	Passo del Venerocolo (B.), . . .	7595
Pizzo di Coca (B.), . . .	10,014	Passo di Campo (A.), . . .	7507
Pizzo di Scais (B.), . . .	9974	Passo di Dordona (B.), . . .	6824
Monte Redorta (B.), . . .	9964	Passo di San Marco (B.), . . .	6513
Torre di Brenta (A.), . . .	9922	Croce Domini Pass (A.), . . .	6217
Campanile di Brenta (A.), . . .	9636	*Tonale Pass (A.-O.), . . .	6181
Pietra Grande (A.), . . .	9630	Passo di Zovetto (B.), . . .	5968
Guglia di Brenta (A.), . . .	9541	Colle Maniva (A.), . . .	5476
Rè di Castello (A.), . . .	9482	*Passo Campo (A.), . . .	5407
Recastello (B.), . . .	9475	Gampenjoch (A.), . . .	5051
Monte Gleno (B.), . . .	9459	*†Mendel Pass (A.), . . .	4462
Monte Tornello (B.), . . .	8819	*Passo di Castione (B.), . . .	4219
Corno Stella (B.), . . .	8596	*Aprica Pass (A.-B.), . . .	3875
Monte Legnone (B.), . . .	8563		
Pizzo dei Tre Signori (B.), . . .	8380		
Pizzo di Presolana (B.), . . .	8239		
Grigna (B.), . . .	7907		
Monte Baldo (A.), . . .	7218		
Monte Spinale (A.), . . .	7094		
Monte Roën (A.), . . .	6939		
Monte Gazza (A.), . . .	6529		
Monte Resegone (B.), . . .	6155		

- (18) **Central Tyrolese Alps** (from the Brenner Pass to the Radstädter Tauern, N. of the Pusterthal and the upper Drave valley, and S. of the Pinzgau and the Enns valley). This group includes the independent Riesenferner group that rises S. of the main Tauern group.

<i>Peaks.</i>		<i>Passes.</i>	
Gross Glockner (T.), . . .	12,461	Mitterbachjoch (Z.), . . .	10,270
Glocknerwand (T.), . . .	12,209	Riffelthor (T.), . . .	10,210
Gross Venediger (T.), . . .	12,008	Trippachsattel (Z.), . . .	10,020

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Central Tyrolese Alps—continued.

<i>Peaks.</i>		<i>Passes.</i>	
Gross Wiesbachhorn (T.),	11,713	Bockkarscharte (T.),	9994
Rainerhorn (T.),	11,684	Alpeinerscharte (Z.),	9712
Hochfeiler (Z.),	11,559	Ober Sulzbachthörl (T.),	9600
Dreiherrenspitze (T.),	11,500	Antholzerscharte (R.),	9252
Simonspitze (T.),	11,447	Goldzechscharte (T.),	9220
Mösele (Z.),	11,438	Fragantscharte (T.),	9046
Olperer (Z.),	11,418	Kleine Zirknitzscharte (T.),	8921
Johannisberg (T.),	11,375	Grosse Elendscharte (T.),	8770
Hochgall (R.),	11,287	Krimmler Tauern (Z.-T.),	8642
Thurnerkamp (Z.),	11,228	Heiligenbluter Tauern or	
Schrammacher (Z.),	11,208	Hochthor (T.),	8442
Daberspitze (T.),	11,182	Velber Tauern (T.),	8334
Gross Löffler (Z.),	11,096	Kalser Tauern (T.),	8242
Fussstein (Z.),	11,090	†Hohe Tauern (T.),	8081
Schwarzenstein (Z.),	11,057	Mallnitzer Tauern (T.),	7920
Gross Geiger (T.),	11,041	Tuxerjoch (Z.),	7697
Ruthnerhorn (R.),	11,024	Klammljoch (R.-T.),	7517
Hochalmspitze (T.),	11,008	Arlscharte (T.),	7386
Reichenspitze (Z.),	10,844	Pfitscherjoch (Z.),	7376
Gross Rother Knopf (T.),	10,814	Kals Matreierthörl (T.),	7238
Gross Mörchner (Z.),	10,785	Stallersattel (R.),	6742
Wildgall (R.),	10,735	*Radstädter Tauern (T.),	5702
Hochnarr or Hocharn (T.),	10,689	*†Brenner Pass (St.-Z.),	4495
Ankogel (T.),	10,673		
Hochschober (T.),	10,663		
Kitzsteinhorn (T.),	10,512		
Gross Greiner (Z.),	10,509		
Sonnblick (T.),	10,191		
Zsigmondyspitze (Z.),	10,122		
Hafnereck (T.),	10,043		
Reckner (Z.),	9485		

(19) The Dolomites of the South Tyrol (from the Brenner route to the Monte Croce Pass, and S. of the Pusterthal).

<i>Peaks.</i>		<i>Passes.</i>	
Marmolata,	11,024	Passo d'Ombretta,	8983
Antelao,	10,706	Langkofeljoch,	8803
Tofana (central summit),	10,633	Tschagerjoch,	8675
Sorapiss,	10,594	Grasleiten Pass,	8521
Monte Civetta,	10,564	Passo di Pravitale,	8465
Vernel,	10,519	Passo delle Comelle,	8462
Monte Cristallo,	10,496	Passo della Rosetta,	8442
Cima di Vezzana,	10,470	Vajolet Pass,	8363
Cimone della Pala,	10,453	Passo di Canali,	8193

<i>Peaks.</i>		<i>Passes.</i>	
Langkofel,	10,427	Tiersalpljöchl,	8055
Pelmo,	10,397	Passo di Ball,	8038
Dreischusterspitze,	10,375	Forcella di Giralba,	7992
Boëspitze,	10,342	Col dei Bos,	7579
Croda Rossa (Hohe Gaisl)	10,329	Forcella Grande,	7422
Piz Popena,	10,312	*Pordoi Pass,	7382
Sasso Vernale,	10,309	Sellajoch,	7277
Elferkofel,	10,220	Tre Sassi Pass,	7215
Großmannspitze,	10,207	Mahlknechtjoch,	7113
Zwölferkofel,	10,142	Grödenerjoch,	7011
Innerkoflerthurm	10,073	*Falzarego Pass,	6946
Sass Rigais (Geislerspitzen),	9932	Fedaja Pass,	6713
Grosse Furquetta (. . .),	9932	Passo di Valles,	6667
Grosse Zinne,	9853	*Rolle Pass,	6509
Kesselkogel (Rosengarten)	9840	Forcella Forada,	6480
Fünffingerspitze,	9833	Passo di San Pellegrino,	6267
Pala di San Martino,	9831	Forcella d'Alleghe,	5971
Croda Grande,	9815	*Tre Croci Pass,	5932
Rosengartenspitze,	9781	*Karersee (Caressa) Pass,	5715
Vordere (W.) Zinne,	9758	*Monte Croce Pass,	5374
Marmarole, higher peak,	9715	*Ampezzo Pass,	5066
Marmarole, lower peak,	9623	Cereda Pass,	4501
Cima di Fradusta,	9649	*†Toblach Pass,	3967
Kleine Zinne,	9452		
Fermedathurm,	9407		
Cima d'Asta,	9344		
Cima di Canali,	9338		
Croda Grande,	9315		
Vajoletthurm (highest),	9256		
Sass Maor,	9239		
Dirupi di Larsec,	9174		
Cima di Ball,	9131		
Delagothurm,	9121		
Cima della Madonna,	9026		
Rosetta,	8993		
Croda da Lago,	8911		
Central Grasleitenspitze,	8875		
W. Grasleitenspitze,	8766		
Schlern,	8406		
Sasso di Mur,	8380		
Cinque Torri,	7750		
Cima delle Dodici,	7671		
Monte Pavione,	7664		
Cima di Posta,	7333		
Monte Pasubio,	7323		

(20) South Eastern Alps (E. of the Monte Croce Pass, and
S. of the upper Drave valley).

N.B.—The letters, 'C,' 'J,' and 'K,' indicate to which division of this group—the Carnic, Karawankas, or Julic Alps—the Peak or Pass belongs.

<i>Peaks.</i>		<i>Passes.</i>	
Terglou (J.), . . .	9400	Wolayer Pass (C.), . .	6506
Monte Coglians (C.), . .	9128	*Monte Croce Pass (C.), .	5374
Kellerwand (C.), . . .	9105	*Loibl Pass (K.), . . .	4495
Jóf del Montasio (J.), . .	9039	Plöcken Pass (C.), . . .	4462
Cima dei Preti (C.), . . .	8868	*Predil Pass (J.), . . .	3813
Monte Peralba (C.), . . .	8829	*Birnbaumer Wald (J.), .	2897
Manhart (J.),	8786	†*Saifnitz or Pontebba	
Jalouc (J.),	8711	Pass (C.-J.),	2615
Monte Canin (J.),	8471		
Monte Cridola (C.), . . .	8468		
Grintouc (K.),	8429		
Prestrelenik (J.),	8202		
Monte Cavallo (C.)	7386		
Krn (J.),	7369		
Stou (K.),	7346		
Dobratsch (C.),	7110		
Velka Kappa (K.),	5059		

APPENDIX II

SELECT LIST OF THE PRINCIPAL PEAKS IN THE ALPS ARRANGED ACCORDING TO THE DATE AT WHICH THEY WERE FIRST CONQUERED

N. B.—1. Where not otherwise stated, the date given refers to the ascent of the *highest* point of the summit named.

2. If several peaks were climbed in the same year the names are placed in topographical order according to the twenty groups enumerated in Appendix 1.

3. The numerals appended to each name refer to the aforesaid twenty groups.

4. The asterisk prefixed to certain names signifies that the first recorded ascent was made solely or jointly by Englishmen, among whom the present writer, an American, has ventured to include himself.

1358		1770
Rochemelon (4).		Buet (5).
1492		1778
Mont Aiguille (3).		Terglou (20).
By 1654		1779
W. Karwendelspitze (15).		Mont Vélan (6).
Before 1694		1782
Mont Thabor (2).		Scopi (9).
Before 1707		1784
Piz Beverin (9).		Aiguille and Dôme du Goûter (5).
Between 1716 and 1742		1786
Scesaplana (14).		Mont Blanc (5).
1744		1788
Titlis (8).		Hangendgletscherhorn (8).
About 1762		Grande Dent de Morcles (8).
Ankogel (18).		Stockgron (10).

1789

Pizzo Bianco (7).
 Rothhorn di Gressoney (7).
 Rheinwaldhorn (9).

Between **1792** and **1797**
 Uri Rothstock (8).

About 1792

'Blaues Gletscherhorn' (8).

1792

Theodulhorn (6).
 Klein Matterhorn (7).
 Oberalpstock (10).

1793

Piz Urlaun (10).

Before 1799

Gross Wiesbachhorn (18).

1800

Gross Glockner (18).

1801

Punta Giordani (7).
 Piz Aul (9).
 Piz Scharboden (9).

1802

Piz Terri (9).

1804

Ortler (16).

1806

Güferhorn (9).

About 1810

Aiguille de la Grande Sassièr (4).

1811

Jungfrau (8).

Between **1811** and **1818**
 Rizlihorn (8).

1812

Finsteraarhorn (8).

1813

Zermatt Breithorn (7).

Before 1817

Mettenberg (8).

Before 1819

Rochebrune (3).

1819

Vincent Pyramide (7).

1820

Zumsteinspitze, Monte Rosa (7).
 Zugspitze (15).

1822

Roche d'Ambin (2).
 Ludwigshöhe (7).

1823

Grand Rubren (2).
 Bristenstock (10).

1824

Tödi (10).

1825

Hafnereck (18).

Before 1827

Hochnarr or Hocharn (18).

Between 1828 and 1835

Piz Tambo (9).

1829

Torrenthorn (8).

1830

Mont Pelvoux, Pyramide (3).
 Schalfkogel (16).

1831

Kleine Windgälle (10).

1832

Mont Clapier (1).
 Becca di Nona (4).
 Hausstock (10).
 Dachstein (15).

1833

Strahlkogel (16).

1834

Altels (8).
 Similaun (16).

1835

Sasseneire (6).
Oldenhorn (8).
Piz Palü, lower point (12).
Piz d'Agnelli (13).
Piz Linard (14).

1836

Mont Tinibras (1).
Rognosa di Sestrières (2).
Gstellihorn (8).
Mädelegabel (15).
Fernerkogel (16).

1839

Central Aiguille d'Arves (3).

Before 1840

Galenstock (8).

1840

Mattwaldhorn (7).
Schranskogel (16).

1841

Sustenhorn (8).
Ewigschneehorn (8).
Düssistock (10).
Gross Venediger (18).

1842

Tersiva (4).
Cime de l'Est de la Dent du
Midi (5).
*Stockhorn (Col d'Hérens) (6).
Signalkuppe of Monte Rosa (7).
*Riffelhorn (7).
Gross Lauteraarhorn (8).
Gross Scheerhorn (10).
Vorab (10).

1843

Wildhorn (8).
Gross Löffler (18).

1844

Rosenhorn, Wetterhorn (8).
Hasle Jungfrau, Wetterhorn (8).
*Wasenhorn (9).
Johannisberg (18).

1845

*Mittelhorn, Wetterhorn (8).
Hoch Ducan (13).

1846

Piz Surlej (12).
Piz Aguagliouls (12).
Piz d'Esen (12).
Piz Languard (12).
Piz Lischanna (12).
Piz Kesch, lower point (13).
Weisskugel (16).
Gross Mörchner (18).

1847

Schrammacher (18).

1848

Mont Pelvoux, highest point (3).
Grenzgipfel of Monte Rosa (7).
Ulrichshorn (7).
*Stockhorn (Gornergrat) (7).
*Gornergrat (7).
Grosse Windgälle, lower point (10).
Piz Quaternals (12).
Zimbaspitze (14).
Wildspitze, lower point (16).

1849

Tête Blanche (6).
Krone (14).
Piz Mondin (14).

1850

Diablerets (8).
Piz Bernina (12).
Il Chapütschin (12).
Piz Tschierva (12).
Piz Corvatsch (12).
Piz Misaun (12).

1851

Combin de Corbassière (6).

1852

Hohe Wilde (16).
Schwarzenstein (18).
Hochschober (18).

1853

Glarner Tödi (10).
Glockthurm (16).

1854

*Ostspitze of Monte Rosa (7).
*Strahlhorn (7).
Rossbodenhorn (7).

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- *Cima di Jazzi (7).
- Gross Rinderhorn (8).
- Monte Vioz (16).
- Hochgall (18).
- Monte Peralba (20).

Before 1855

- Mont Emilius (4).

1855

- *Mont Blanc du Tacul (5).
- *Monte Rosa, highest point (7).
- Weissmies (7).

1856

- Aiguille du Midi (5).
- *Mont Avril (6).
- *Mettelhorn (6).
- *Allalinhorn (7).
- *Laquinhorn (7).
- Wildstrubel, W. peak (8).

1857

- Ciamarella (4).
- Bessanese, lower point (4).
- Croce Rossa (4).
- Levanna, E. peak (4).
- Pointe de Graffenire (6).
- Tête du Lion (6).
- Mönch (8).
- *Klein Schreckhorn (8).
- *Trugberg, lowest point (8).
- *Wildstrubel, central peak (8).
- Pizzo della Margna (12).
- Piz dellas Calderas (13).
- *Pelmo (19).

1858

- Rutor (4).
- Punta Bianca, Grivola (4).
- *Dôme de Miage (5).
- Tour Sallières (5).
- *Dom (7).
- Nadelhorn (7).
- *Eiger (8).
- Piz Morteratsch (12).
- Muttler (14).
- Hinter Brochkogel (16).

1859

- *Grivola (4).
- Grand Combin (6).
- *Rimpfischhorn (7).

- *Aletschhorn (8).
- *Bietschhorn (8).
- Monte Leone (9).
- Piz Julier (12).
- Piz Tremoggia (12).
- Pizzo Stella (13).
- Pizzo della Duana (13).
- Rainerhorn (18).
- Hochalmspitze (18).

Before 1860

- Levanna, W. peak (4).

1860

- *Grand Paradis (4).
- *Grande Casse (4).
- *Signal du Mont Iseran (4).
- *Château des Dames (6).
- *Alphubel (7).
- *Blümlisalphorn (8).
- *Oberraarhorn (8).

1861

- *Monte Viso (2).
- *Aiguille and Dôme de Polset (4).
- *Doravidi Sud (4).
- Mont Pourri (4).
- *Dôme de la Sache (4).
- *Mont Gelé (6).
- *Weisshorn (6).
- *Nord End of Monte Rosa (7).
- *Castor (7).
- *Lyskamm (7).
- *Gross Schreckhorn (8).
- *Gwächtenhorn (8).
- Piz Segnes (10).
- Pizzo Gallegione (13).
- Piz Grisch (13).
- Fluchthorn (14).
- Wildspitze, higher point (16).

1862

- Pointe de Charbonel (4).
- *Dent Blanche (6).
- Lo Besso (6).
- *Täschhorn (7).
- *Gross Fiescherhorn (8).
- Weisse Frau (8).
- Gross Doldenhorn (8).
- *Monte della Disgrazia (12).

1863

- *Grandes Rousses, N. peak (3).
- *Granta Parey (4).
- *Pointe de Tanneverge (5).
- *Dent d'Hérens (6).
- *Diablons (6).
- *Parrotspitze, Monte Rosa (7).
- *Balfrin (7).
- Silberhorn (8).
- Schlossberg (8).
- Basodino (9).
- Helsenhorn (9).
- Bifertenstock (10).
- Claridenstock (10).
- Selbsanft (10).
- Piz Zupo (12).
- *Piz Roseg, lower point (12).
- Piz Cambrena (12).
- Zuckerhütl (16).
- Antelao (19).
- Tofana, central peak (19).

Before 1864

- Dent Parrachée (4).

1864

- Cima dei Gelas (1).
- *Pointe des Ecrins (3).
- *Punta Rossa, Grivola (4).
- *Grande Motte (4).
- *Aiguille d'Argentière (5).
- *Aiguille de Trélatête (5).
- *Aiguille du Tour (5).
- *Mont Dolent (5).
- *Zinal Rothhorn (6).
- *Bouquetin (6).
- Punta di Fontanella (6).
- Pollux (7).
- *Balmhorn (8).
- Fleckistock (8).
- Berglistock (8).
- Studerhorn (8).
- Gross Wannehorn (8).
- Ochsenhorn (8).
- Ofenhorn (9).
- *Vogelberg (9).
- Gross Ruchen (10).
- Piz Sol (10).
- *Monte Sissone (12).
- *Piz Kesch, higher point (13).
- Hoher Riffler (14).
- *Königsspitze (16).
- Monte Cevedale, lower point (16).

- Monte Venerocolo (17).

- *Presanella (17).
- Adamello (17).
- Marmolata (19).
- Sorapiss (19).

Before 1865

- Brunnegghorn (6).

1865

- *Tsanteleina (4).
- *Petit Mont Bassac (4).
- *Aiguille Verte (5).
- *Grandes Jorasses, lower point (5).
- *Aiguille de Bionnassay (5).
- *Aiguille du Chardonnet (5).
- *Matterhorn (6).
- *Ober Gabelhorn (6).
- *Grand Cornier (6).
- *Wellenkuppe (6).
- *Trifhorn (6).
- *Pigne d'Arolla (6).
- Mont Blanc de Seilon (6).
- *Ruinette (6).
- Pointe de Rosa Blanche (6).
- Gross Grünhorn (8).
- *Lauterbrunnen Breithorn (8).
- *Tschingelhorn (8).
- Stucklistock (8).
- *Gross Nesthorn (8).
- Dammastock (8).
- Piz Medel (9).
- Ringelspitz (10).
- *Piz Roseg, higher point (12).
- Piz Umbrail (12).
- Crast' Agülza (12).
- Piz Pisoc (12).
- Piz d'Aela (13).
- Gross Piz Buin (14).
- Silvrettahorn (14).
- *Punta San Matteo (16).
- *Pizzo Tresero (16).
- Monte Cevedale, higher point (16).
- Finailspitze (16).
- Hochvernagtspitze (16).
- Ruderspitze (16).
- Wilder Freiger (16).
- *Carè Alto (17).
- *Cima Tosa (17).
- *Mösele (18).
- Hochfeiler (18).
- Monte Cristallo (19).
- Monte Coglians (20).

1866

- *Albaron (4).
- Monveso di Forzo (4).
- Punta Lavina (4).
- Pointe de Garin (4).
- *Aiguille de l'Eboulement (5).
- Bec d'Epicoun (6).
- Pointe d'Otemma (6).
- Mont Fort (6).
- *Bec de Lusency (6).
- Tête de Valpelline (6).
- *Klein Wannehorn (8).
- Wellhorn (8).
- *Blindenhorn (9).
- *Cima di Castello (12).
- *Piz Cengalo (12).
- *Pizzo del Teo (12).
- *Pizzo Scalino (12).
- *Corno di Campo (12).
- *Corno di Dosdè (12).
- *Corno di Lago Spalmo (12).
- Piz Platta (13).
- *Tinzenhorn (13).
- *Piz Vadret, lower point (13).
- Verstanklahorn (14).
- Gross Litzner (14).
- Monte Zebriù (16).
- Tuckettspitze (16).
- *Punta Taviela (16).
- *Monte Rosole (16).
- Dreiherrenspitze (18).
- Ruthnerhorn (18).

1867

- *Tour du Grand St. Pierre (4).
- Tresenta (4).
- Punta Fourà (4).
- *Tour Ronde (5).
- *Mont Collon (6).
- Evêque (6).
- Mont Pleureur (6).
- *Jägerhorn (7).
- *Gletscherhorn (8).
- *Gross Spannort (8).
- Campo Tencia (9).
- Bündtner Tödi (10).
- Mürtschenstock (10).
- Cima di Piazza (12).
- *Piz Badile (12).
- *Cima di Rosso (12).
- *Piz Michel (13).
- *Piz Vadret, higher point (13).
- *Hintere Rothspitze (16).

- Palon della Mare (16).
- Hintere Schwärze (16).
- Olperer (18).
- *Monte Civetta (19).

1868

- *Grandes Jorasses, higher point (5).
- Aiguille de la Za (6).
- Grosshorn (8).
- *Ebnefluh (8).
- *Dreieckhorn (8).
- *Krönte (8).
- Tschingelhörner (10).
- Bellavista (12).
- *Piz Palü, highest point (12).

1869

- Petit Paradis (4).
- Pointe de Ronce (4).
- *Hohberghorn (7).
- Morgenhorn (8).
- *Gspaltenhorn (8).
- Schienhorn (8).
- Breitlauhorn (8).
- Pizzo Rotondo (9).
- Piz Argient (12).
- Surettahorn (13).
- Piz Fliana (14).
- Gross Seehorn (14).
- Parseierspitze (15).
- Thurwieserspitze (16).
- Sonklarspitze (16).
- Watzesspitze (16).
- Langkofel (19).
- Grosse Zinne (19).
- *Cima di Ball (19).
- *Cima di Fradusta (19).
- Dreischusterspitze (19).

1870

- *Meije, central peak (3).
- *Ailefroide (3).
- Pointe de Zinal (6).
- *Südlenspitze (7).
- Trugberg, central point (8).
- Drusenfluh (14).
- Weisseespitze (16).
- Wilder Pfaff (16).
- Pizzo di Presolana (17).
- *Cimone della Pala (19).
- *Rosetta (19).
- *Piz Popena (19).
- *Hohe Gaisl or Croda Rossa (19).

1871

- Monte Stella (1).
- Punta Sommeiller (2).
- Monte Ciusalet (2).
- Cima di Charforon (4).
- *Aiguille du Plan (5).
- *Aiguille du Moine (5).
- *Mont Mallet (5).
- *Dents des Bouquetins (6).
- *Dent Perroc (6).
- *Pointe de Mountet (6).
- *Portjengrat (7).
- *Rothhorn, Fusshörner (8.)
- Trugberg, highest point (8).
- Piz Lucendro (9).
- Piz Blas (9).
- Sandgipfel (10).
- Porphir (10).
- Cima di Brenta (17).
- Gross Geiger (18).
- Simonyispitze (18).

1872

- *Aiguille de Leschaux (5).
- Combin de Valsorey (6).
- *Aiguilles Rouges d'Arolla (6).
- *Agassizhorn (8).
- *Unterbächhorn (8).
- Scheuchzerhorn (8).
- Grunerhorn (8).
- Wildstrubel, highest point (8).
- Zapporthorn (9).
- Trafoier Eiswand (16).
- *Thurnerkamp (18).
- Wildgall (18).
- Gross Rother Knopf (18).
- Glocknerwand (18).
- *Cima di Vezzana (19).
- *Kesselkogel (Rosengarten) (19).
- *Marmarole, lower peak (19).

1873

- *Grande Ruine (3).
- *Râteau (3).
- *Sommet des Rouies (3).
- *Roche Faurio (3).
- *Montagne des Agneaux (3).
- Mont Herbetet (4).
- Bessanese, higher point (4).
- Punta d'Arnas (4).
- *Aiguille de Rochefort (5).
- *Schallhorn (6).
- Schwarzhorn, Monte Rosa (7).

- *Gross Wendenstock (8).
- Gross Greiner (18).
- Daberspitze (18).

1874

- Grandes Rousses, S. peak (3).
- *Pic de la Grave (3).
- *Mont Thuria (4).
- Punta di Ceresole (4).
- Roccia Viva (4).
- Bec de l'Invergnan (4).
- *Aiguille de Blaitière (5).
- *Aiguille de Triolet (5).
- Aiguille des Maisons Blanches (6).
- Monte delle Loccie (7).
- Patteriol (14).
- Zwölferkofel (19).
- *Rosengartenspitze (19).

1875

- Aiguille de Scolette (2).
- Dents d'Ambin (2).
- Rognosa d'Etache (2).
- *Roche de la Muzelle (3).
- Punta di Gay (4).
- Becca di Montandeyné (4).
- Levanna, central peak (4).
- Becs de la Tribulation (4).
- Balmenhorn, Monte Rosa (7).
- Gross Lohner (8).
- Cima Viola (12).
- *Sass Maor (19).

1876

- Bric Bouchet (2).
- Roche Taillante (2).
- Aiguille du Plat (3).
- *Aiguille des Arias (3).
- Tête de l'Etret (3).
- Dôme de Chasseforêt (4).
- *Pointe des Sengies (4).
- Tour Noir (5).
- *Grande Fourche (5).
- Petites Jorasses (5).
- *Les Droites (5).
- *Les Courtes (5).
- *Mont Brulé (6).
- *Fusshorn (8).
- *Gross Engelhorn (8).
- Klein Spannort (8).
- *Grosse Windgälle, higher point (10).
- *Pizzo Bianco, Bernina (12).
- Pizzo del Ferro (12).
- Recastello, Berg. (17).

1877

- Bric Froid (2).
- Meije, highest point (3).
- *Pic d'Olan (3).
- *Pic Sans Nom (3).
- *Grande Sagne (3).
- *Pic Coolidge (3).
- *Cime de Clot-Châtel (3).
- *Sirac (3).
- Flaret (3).
- Pic des Aupillous (3).
- Roche du Grand Galibier (3).
- Dôme de l'Arpont (4).
- Pointe de la Sana (4).
- Ondezana (4).
- Grand Nomenon (4).
- *Mont Blanc de Courmayeur (5).
- *Aiguille Noire de Pétérét (5).
- Monte di Scerscen (12).
- Küchelspitze (14).
- Jöf del Montasio (20).

1878

- *Cima di Nasta (1).
- Brec de Chambeyron (2).
- Pointe de la Font Sancte (2).
- *Pic du Thabor (2).
- *Les Bans (3).
- Meije, E. peak (3).
- Pic Gaspard (3).
- Pointe du Vallon des Etages (3).
- *Pic des Arcas (3).
- *Aiguille du Soreiller (3).
- *Southern Aiguille d'Arves (3).
- *Northern Aiguille d'Arves (3).
- *Aiguille de Péclet (4).
- *Pointe de la Galise (4).
- Grande Aiguille Rousse (4).
- Roc du Mulinet (Cima Martellot) (4).
- *Mont Maudit (5).
- *Grand Dru (5).
- Aiguille des Glaciers (5).
- Mittaghorn (8).
- Elferkofel (19).
- Sass Rigais (Geislerspitzen) (19).
- Croda da Lago, higher peak (19).
- Sasso Vernale (19).
- Pala di San Martino (19).
- Kellerwand (20).

1879

- *Punta dell' Argentera (1).

- *Monte Matto (1).
- *Aiguille de Chambeyron (2).
- *Pointe Haute de Mary (2).
- Tête des Toillies (2).
- *Pavé (3).
- *Pic du Says (3).
- *Pic de Verdonne (3).
- *Pic Bonvoisin (3).
- Tête de Lauranoure (3).
- Punta di Forzo (4).
- *Grand Sertz (4).
- *Aiguille de Talèfre (5).
- Petit Dru (5).
- Pointe de Bricolla (6).
- *Sonnighorn (7).
- *Dürrenhorn (7).
- Pizzo di Dosdè (12).
- Zsigmondyspitze (18).
- W. or Vordere Zinne (19).
- Vernel (19).
- *Cima di Canali (19).

1880

- Becca du Lac (4).
- Pointe du Châtelard (4).
- *Aiguille des Grands Charmoz (5).
- *Aiguille du Tacul (5).
- *Geisshorn (8).
- *Cima d'Ambies (17).
- *Fussstein (18).
- Grohmannspitze (19).
- Grosse Furchetta (19).
- *Cinque Torri (19).
- Innerkofelthurm (19).

1881

- *Pointe des Henvières (2).
- *Panestrel (2).
- *Pic du Pelvat (2).
- *Visolotto (2).
- *Aiguille de Jean Rostan (2).
- *Fifre (3).
- Grande Arolla (4).
- Becca di Monciair (4).
- *Aiguille de Grépon (5).
- *Dôme de Rochefort (5).
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- *Siedel Rothhorn (9).
- Pizzo di Scais (17).
- Vajolletthurm (19).
- Kleine Zinne (19).
- Sasso di Mur (19).

1882

- Rocca Bernauda (2).
- *Levannetta (4).
- *Aiguille du Géant (5).
- *Calotte de Rochefort (5).
- *Pointe de Mourtî (6).
- Tschingelochthorn (8).
- Tiefenstock (8).
- Banhorn (9).
- *Piz Prielusa (12).
- Pizzo Torrone (12).
- Dosson di Genova (17).
- *Torre di Brenta (17).
- *Dirupi di Larsec (19).

1883

- Tête de Moÿse or de l'Oronaye (2).
- Aiguille de la Varappe, highest of the Aiguilles Dorées (5).
- *Les Périades (5).
- Sattelhorn (8).
- *Lentahorn (9).
- Pizzo Terre (9).
- Piz Bacone (12).
- Piz Schumbraida (12).
- Monte Cornacchia (12).
- Monte del Ferro (12).
- Croda Grande (19).

1884

- *Punta Gastaldi (2).
- Pointe Rénod (4).
- Pointe de l'Echelle (4).
- *Pointe de Piatou (4).
- *Punta Francesetti (4).
- Cima Monfret (4).
- *Punta della Gura (4).
- *Bieshorn (6).
- *Klein Bietschhorn (8).
- Schönbühlhorn (8).
- Galmi (8).
- *Wendehorn (8).
- *Fünffingerspitze (8).
- Pizzo dei Piani (9).
- Piz Timun (13).
- Stammerspitz (14).
- Kuchenspitze (14).
- Crozzon di Brenta (17).
- Croda da Lago, lower peak (19).

1885

- Punta Bonneval (4).
- *Grivoletta (4).

- *Punta Budden (4).
- *Tête de la Tribulation (4).
- *Aiguille Blanche de Pétérêt (5).
- Grand Darrei (5).
- Pointe des Genevois (6).
- Gross Hohwänghorn (6).
- Gross Nüssihorn (8).
- Kamm (8).
- Wasenhorn (8).
- *Piz d'Albana (13).
- Campanile di Brenta (17).
- Central Grasleitenspitze (19).

Before 1886

- Cherbadung (9).

1886

- *Pic du Clapier du Peyron (3).
- Monte Nero (4).
- *Dents de Bertol (6).
- *Ober Mominghorn (6).
- *Hühnerstock (8).
- *Olmenhorn (8).
- Thieralplstock (8).
- Dreiländerspitz (14).
- Cima della Madonna (19).

1887

- *Tête de Vautisse (3).
- *Pic Bourcet (3).
- *Pic des Prés les Fonds (3).
- *Cime du Grand Sauvage (3).
- *Mont Savoyat (3).
- *Pointe de la Glière (4).
- *Cime d'Oin (4).
- Aiguille Verte de Valsorey (6).
- *Crête de Millon (6).
- Stecknadelhorn (7).
- Ankenbälli (8).
- *King's Peak, Engelhörner (8).
- *Farmedathurm (19).

Before 1888

- Punta Nera, Grivola (4).

1888

- *Péou Roc (2).
- *Becca di Noaschetta (4).
- *Tête de Valmontey (4).
- *Cresta Gastaldi (4).
- Aiguille de la Neuvez (5).
- Aiguilles Rouges du Dolent (5).
- Bächlistock (8).
- Sciara di dentro (12).
- Thorwäche (14).

1889

- Pic du Ribon (4).
- Pointe de la Goletta (4).
- *Cime de Quart dessus (4).
- *Punta del Broglio (4).
- Pointe des Pattes des Chamois (4).
- *Becca di Suesa (4).
- *Punta Crevasse (4).
- Aiguille de l'Allée Blanche (5).
- Grande Luis (5).
- Gletschhorn (8).
- Fluchthorn, central peak (14).
- Busazza (17).
- W. Grasleitenspitze (19).

1890

- *Pic des Souffles, lower peak (3).
- *Rocher de Pierre Pointe (4).
- Petit Darrei (5).
- *Klein Schienhorn (9).
- Monte di Zocca (12).
- Fluchthorn, N. peak (14).
- Fünffingerspitze (19).
- Marmarole, higher point (19).

1891

- *Aiguille Noire (Rochilles) (2).
- *Pointe des Cerces (2).
- *Pic des Souffles, higher peak (3).
- *Dents des Rosses (6).
- *Moine (6).
- *Ritord (6).
- Hinter Sustenhorn (8).
- Pierre Cabotz (8).
- *Pizzo di Pesciora (9).
- Hüllehorn (9).
- Cima di Cantone (12).
- Cima del Largo (12).
- Piz Plavna dadaint (12).

1892

- *Punta del Tuf (4).
- Becca d'Arbiera (6).
- Pointe des Grandes Murailles (6).
- *Distelhorn (8).
- *Güschhorn (9).
- *Wyttengewasserstock (9).
- *Neufelgiuhorn (9).
- *Punta Mottiscia (9).
- *Gross Schienhorn (9).
- *Pizzo Columbè (9).
- Corbet (9).

- Cima dei Cogni (9).
- Cima di Balniscio (9).
- Cima di Vazzeda (12).
- Punta Rasica (12).
- Sciara di fuori (12).
- Pizzi Gemelli (12).
- Pioda di Sciara (12).
- Zahnspeitz (14).

1893

- *Dent du Requin (5).
- *Aiguille Forbes (5).
- *Alperschellihorn (9).
- *Weisshorn (9).
- *Piz Murtaröl (12).
- *Piz Tavrü (12).
- *Piz Laschadurella (12).
- Piz Zuort (12).
- Piz San Jon (12).
- Ago di Sciara (12).
- Piz d'Arblatsch (13).
- Piz Forbisch (13).

1894

- *Combin de Zessetta (6).
- *Punta del Dragone (6).
- Cima di Livournea (6).
- Pizzas d'Annarosa (9).
- Cima di Saoseo (12).
- Piz Por (13).

1895

- Cima della Maledia (1).
- Aiguille de Toule (5).
- Lonzahorn (8).
- Monte Valnera (12).
- Corno di Capra (12).
- Monte Saliente (12).
- Delagothurm (19).

1896

- Steinlauenenhorn (8).
- *Kranzberg (8).
- Piz del Diavel (12).
- Cime di Redasco (12).
- Sasso di Conca (12).
- Piz Pisoc, S. peak (12).

1897

- *Tour d'Arpisson (4).
- Aiguille d'Entrèves (5).
- Hugihorn (8).
- Corno Sinigaglia (12).

1898	1903
*Simmelstock (8).	*Klein Nässihorn (8).
1899	1904
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1902	
Piz Grass (12).	

APPENDIX III

LIST OF THE PRINCIPAL WORKS RELATING TO THE ALPS

N.B.—This List includes merely those general works which deal with the Alps as a whole or with one of their three main Divisions (Western, Central, or Eastern). A fuller list (by the present writer) will be found in the new edition of Mr. John Ball's *Hints and Notes for Travellers in the Alps* (London, 1899), while for Switzerland and the adjoining regions Herr A. Waber's *Landes- und Reisebeschreibungen* (Bern, 1899) is well-nigh exhaustive.

ALLAIS, G., *Le Alpi Occidentali nell' Antichità*. Turin, 1891. (History of the Western Alps to the end of the Roman period.)

Alpi che cingono l'Italia, *Le*. vol. i. (all published). Turin, 1845. (Topographical lists and description, with heights, of all the peaks and passes of the Alpine ranges enclosing Italy on the north.)

ALTMANN, J. G., *Versuch einer Historischen und Physischen Beschreibung der Helvetischen Eisbergen*. Zürich, 1751. (The first attempt at a description of the snowy region of the Swiss Alps.)

BALL, JOHN, *Hints and Notes for Travellers in the Alps*. New edition. London, 1899. (Contains full notices of the Geology, Zoology, and Botany of the Alps.)

BERLEPSCH, H. A., *Die Alpen in Natur- und Lebensbildern*. Fifth edition. Jena, 1885. English translation by Sir Leslie Stephen (London, 1861). (Excellent account of the chief phenomena of the Alps, with special reference to the Swiss Alps.)

BONNEY, T. G., *The Alpine Regions of Switzerland and the Neighbouring Regions*. London, 1868. (Deals mainly with matters relating to natural science.)

BROCKEDON, W., *Illustrations of the Passes of the Alps by which Italy communicates with France, Switzerland, and Germany*. 2 vols. London, 1828-9. (Notices of the great Historical Passes of the Alps, illustrated by fine steel engravings.)

- Climbers' Guides*, 13 vols. (as yet). London, 1890-1908. (This series, edited and largely written by Sir Martin Conway and the Rev. W. A. B. Coolidge, describes for mountaineers the Dauphiné and Eastern Graian Alps, the chain of Mont Blanc, the Pennines, (2 vols.), the Bernese Oberland (5 vols.), the Lepontine and Adula Alps, and the Range of the Tödi.)
- CONWAY, SIR MARTIN, *The Alps from End to End*. London, 1895. (An account of a journey made in 1894.)
- CONWAY, SIR MARTIN, and MCCORMICK, A. D., *The Alps, described by Sir Martin Conway and painted by A. D. McCormick*. London, 1904. (Eloquent descriptions of the High Alps, with coloured Illustrations.)
- COOLIDGE, W. A. B., *Swiss Travel and Swiss Guide-books*. London, 1889. (Contains a history of Swiss Guide-books, of Alpine Inns, and of Zermatt, with a list of books relating to Swiss Travel.)
- CUNNINGHAM, C. D., and ABNEY, Sir W. DE W., *The Pioneers of the Alps*. Second edition. London, 1888. (Lives of famous mountain guides.)
- GRAND-CARTERET, J., *La Montagne à travers les Ages*. 2 vols. Grenoble and Moutiers, 1903-4. (Reproductions of many engravings, etc., with letterpress.)
- GRUNER, G. S., *Die Eisgebirge des Schweizerlandes*. 3 vols. Berne, 1760. (A remarkably complete account of the Swiss Alps. There is a bad French translation by M. de Kéralio—*Histoire Naturelle des Glacières de Suisse*, Paris, 1770.)
- LENDENFELD, R. VON, *Aus den Alpen*. 2 vols. Prague, Vienna, and Leipzig, 1896. (General account of the whole chain of the Alps.)
- LEVASSEUR, EMILE, *Les Alpes et les Grandes Ascensions*. Paris, 1889. (General account of the whole chain of the Alps, with notices of the ascents of its principal peaks: this work should be used with caution, as it is disfigured by many mistakes of fact.)
- MARTELLI, A. E., VACCARONE, L., and BOBBA, G., *Guida delle Alpi Occidentali*. 3 vols. Turin, 1889-1896. A new and much enlarged edition of vol. i. is nearly ready. (A Guide-book to the Italian slope of the Alps, from the Col de Tenda to the Simplon, for the use of travellers and climbers.)
- OBERZINER, GIOVANNI, *Le Guerre di Augusto contro i Popoli Alpini*. Rome, 1900. (Practically a history of all the Alpine tribes till their subjection by the Romans.)

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- OEHLMANN, E., *Die Alpenpässe im Mittelalter*. Zürich, 1878-9. (History of the chief Alpine Passes in the Middle Ages—two articles in vols. iii. and iv. of the *Jahrbuch für Schweizerische Geschichte*.)
- PURTSCHELLER, L., and HESS, H., *Der Hochtourist in den Ostalpen*. Third edition. 3 vols. Leipzig and Vienna, 1903. (A Guide-book to the Eastern Alps—roughly speaking E. of Sargans, the Flüela, and the Ofen Passes—for the use of climbers.)
- REINHARD, RAPHAEL, *Pässe und Strassen in den Schweizer Alpen*. Lucerne, 1903. (History of the great Swiss Passes, with full references.)
- RICHTER, E., *Die Erschliessung der Ostalpen*. 3 vols. Berlin, 1893-4. (Detailed history of the climbing history of the Eastern Alps.)
- SCHUECHZER, J. J., *Helvetiæ Stoicheiographia, Orographia, et Oreographia*. Zürich, 1716. (In German. It contains a list of the Swiss peaks then known.)
- SIMLER, JOSIAS, *De Alpibus Commentarius*. Zürich, 1574. (The first systematic account of the Alps ever published. Re-edited, with a French translation and numerous documents illustrating the history of the Alps, by Mr. Coolidge at Grenoble, in 1904, under the title of *Josias Simler et les Origines de l'Alpinisme jusqu'en 1600*.)
- STUDER, GOTTLIEB, *Ueber Eis und Schnee*. New edition, by H. Dübi and A. Wäber. 3 vols. Bern, 1896-9. (Detailed climbing history of the Swiss Alps.)
- UMLAUF, F., *Die Alpen: Handbuch der gesamten Alpenkunde*. Vienna, Pesth, and Leipzig, 1887. English translation, London, 1889. (Very full account of the Alps, mainly from the natural history point of view.)
- VACCARONE, L., *Le Vie delle Alpi Occidentali negli antichi Tempi*. Turin, 1884. (An outline history of the early history of the Passes of the Western Alps, with quotations from many unpublished documents.)
- VACCARONE, L., *Statistica delle Prime Ascensioni nelle Alpi Occidentali*. Third edition. Turin 1890. (List of the high Peaks and Passes in the Western Alps, with the names of those who first ascended or crossed them—an outline of the climbing history of the Western Alps, and very useful pending the publication of a detailed climbing history of that part of the Alps.)

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N.B.—The details contained in the three Appendices are not included in this Index.

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